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AMERICAN INSTITUTE OF ARCHITECTS

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Never Was This Glorious Dome More Beautiful Than on This Sixth Day of April, 1917

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Shadows and Straws

THE GOVERNMENT PUBLIC BUILDING situation was the subject of the following editorial in the *Washington Post* of April 28, last:

BLUNDERS IN BUILDING

While the distinguished visitors from England and France will be too courteous to comment, one may imagine their impressions as they gaze upon the unique disarrangement of Washington's public buildings.

Their very haphazardness of situation and construction is symbolic of the blunders of the past that must be rectified in every field of endeavor. The original plans of the Nation's Capital were laid down by the skilled hand of L'Enfant, whose rare foresight and broad vision contemplated a seat of government which would transcend in beauty and grandeur that of any of the capitals of Europe.

And then we began to build in any fashion and after any model. L'Enfant mapped the approaches and Jefferson searched Europe for plans to aid in building designs. The Capitol and the White House were set on commanding hills, with an uninterrupted vista between. Then the Treasury Building, though of noble and dignified design, was thrust across the vista of the White House from New York Avenue and Pennsylvania Avenue, to be balanced later on by the State, War and Navy Building, blocking the vista on the opposite side. The Botanic Garden was placed in an area reserved by Washington and Jefferson for a wonderful park approach to the western entrance to the Capitol. Together with these and after came new styles of architecture, such as the State, War and Navy Building, the Postoffice Department and the Pension Office—huge, clumsy, awkward piles without any relation to the classic lines of the early architecture. The L'Enfant plan had become a "scrap of paper."

Thus they stand today as monuments to the blunders of the past. They accentuate the demands for better methods of construction and coördination in every sphere of the Nation's development from now on. Fortunately there has been no period in our history when these matters have been more in the public mind than they are today. With the intelligent support of Congress, as is being given at present in park and building development, one may look hopefully forward to the time when the National Capital will present in its architectural structures the unmistakable evidences of its stability, grandeur, and order.

Admirable as is this summing up of the regrettable blunders which have so disappointed the lovers of Washington, it yet fails in emphasizing the real heart of the problem. The fifty years of shortsightedness, during which time the needs of the Government have grown apace, have left the departments in the worst possible condition to grapple with the avalanche of extra work which has now descended upon them as a result of the war. Congestion and disorder are crippling effort. Office room is sought wherever it can be found and must be occupied, under stress, no matter how poorly it may be located with respect to the center of its particular activity. At the moment when the whole world is looking toward our ability to organize, systematize, and create an effective instrument, the misguided public building policy of the United States lays a heavy hand upon the enthusiasm and the zeal of those upon whom the burdens are falling.

But it is precisely because of these things that we would point out the fact that the architectural development of Washington must be based upon a systematic and comprehensive plan. Making Washington beautiful must be incidental to making Washington useful, orderly, convenient. We are not pleading for millions to be spent in ornament, but for the necessary sums to be spent in giving the departments the proper equipment with which to carry on their work. The nearly $700,000

paid in annual rentals would afford a capitalization of more than $20,000,000. With such a sum, there could be provided a series of buildings so planned as not only to give the necessary room and convenience but also to further improve the appearance of the city. In the past there has been a not unnatural tendency on the part of those in authority to mistake the purpose which animated those who have struggled so hard to make Washington realize all the hopes of its founders of a century ago, and all the hopes of its lovers, throughout the nation. Let it never be forgotten that Washington is a national possession!

But it is perhaps true that in their enthusiasm, architects and artists in general have laid so much emphasis upon the esthetic side of the problem as to obscure the economic and utilitarian importance of the things for which they contend. This is natural. It is always hard for a small group to state its problem in an elementary form and make it so clear that all men may understand. Yet everyone who loves Washington must realize that every effort to make it more beautiful must be founded upon the purpose of making it more orderly, more convenient, more adaptable to the purpose for which it exists—to be the center of the Nation's legislative and administrative activity. Based upon those premises, it can be made a national exemplar to which men will repair in search of the best in civic development. Based upon the whims and caprices of any man or any passing group, it will become a reproach to our national carelessness.

Washington has a plan for the location of its public buildings. That plan has been evolved through study by competent men. Like every other plan, it will undoubtedly require ultimate changes, since nothing is created to be permanently perfect. But for the present needs of the Government, and for its needs far into the future, a plan has been made which should be followed. No further departures should be allowed. The new building of the Department of the Interior does not conform to the plan, and such mistakes should not longer be permitted. These are not isolated questions of abstract beauty. They are questions very closely related to the problems of growth and expansion of the Government's activities. They are questions pertinently and vitally related to national preparedness. Administration in a government must begin in a home so built as to be able to deal with a temporary emergency without a heavy and costly sacrifice of efficiency—in a home so planned that it can always be expanded without interference with a comprehensive scheme based upon order and utility.

It is for these reasons that the report of the Public Buildings Commission, authorized by the last Congress to investigate and report upon the public building situation in Washington, is now awaited with such eagerness. This is the moment when that report is badly needed, for it is evident that one of the first steps in national preparedness must be the erection of buildings in which the Government can carry on its business. But whatever may be the need for meeting the temporary emergency, there should be no sacrifice of the future of Washington upon which so much has been expended. All sorts of projects are rumored, from the erection of temporary one-story buildings in various open spaces, duplicating the new Interior Department building, adapting previous plans to emergency needs—and, finally, the project to let private capital erect a building on the Arlington Hotel site for renting to the Government at $200,000 a year. This latter is the kind of speculative scheme which always crops up in a Government building need, but, as Mr. Moore points out in his article, this property should be acquired by the Government. It is not its business to drag the Arlington Hotel fiasco out of the difficulty into which it has sunk, nor should Congress countenance any more of the ten-year leases at a rental of 10 per cent of the estimated cost. These scandals must be stopped, even as a war-time emergency. Resort to these makeshifts is responsible for the present condition. To permit more of them would be a national disgrace.

Let Congress sanction any temporary buildings which can be built by the Government to meet the present emergency, but let Washington express in the dignity and grouping of her permanent buildings the solemnity of the ideal for which this Nation has pledged itself.

IN RESTRICTIONS ON BUILDINGS, of whatever kind, we believe that action has always been based upon the questions of safety and property value. So far as we know, with

the exception of certain powers possessed by art juries in our cities, no question of esthetics has ever been permitted to serve as a basis for regulatory enactments. Yet the value of architectural fitness and harmony is slowly coming to be understood, and it seems not unlikely that we may look forward to an increasing recognition of these values in urban development which are so zealously guarded by the older and wiser cities of Europe.

In New York City, the Fifth Avenue Association, always alert to safeguard the great thoroughfare which has now become world-renowned, has appointed Messrs. Michael Dreicer and Douglas L. Elliman as a committee of the Association, to which there have been joined three members of the New York Chapter, Messrs. Robert D. Kohn, C. Grant La Farge and H. Van Buren Magonigle, the whole constituting a Committee on Architectural Harmony. The Association will keep watch over all intending building improvements and alterations, and will suggest to the owner thereof, and to the architect where one has been appointed, the desirability of coöperating with the Committee we have named. If the owner and architect consent, a subcommittee, consisting of two architects and one layman, will be appointed to confer with them in an effort to secure harmonious treatment of such factors as side walls, materials for façades, color, and fenestration. The subcommittee will report its recommendations to the Association, which in turn will transmit the report to the owner and the architect, with a plea for the adoption of the suggestions made.

While the individualist will no doubt cry out that such a step may have the effect of curbing initiative and be in restraint of genius, we believe that experience will show that a more consistent upward trend is likely to result from this form of coöperation than under the unlimited freedom of action which has so far governed the architecture of our city streets. The effort to accomplish this good for Fifth Avenue seems a worthy one, and although it invokes only a friendly consideration on the part of those who are paying the bills, we believe that the inherent value of harmony will make an appeal such as few will resist.

A gold medal will be awarded to the owner of the building erected during each year which shall be judged, under the rules to be formulated by the committee, to be the best, and another gold medal will also be given, under similar conditions, for the alteration of an existing building. In each case the project deemed second in merit will be the basis for the award of a diploma.

IN RESPONSE TO THE CIRCULAR letter sent out by President Mauran, a copy of which was printed in the April Journal, inviting architects to place their offices and equipment at the disposal of the Government for war emergency purposes, on the basis of actual cost of operation, a great many tenders have been received. This work is now being organized under the auspices of the Institute, as an Institute activity, so that the service will really be an act of Institute service rather than a series of individual assignments. Further details of this plan will appear as soon as the work of organization is definitely completed. It is, perhaps, pertinent to especially emphasize the fact that under the plan now being formulated, it is the Institute which is offering an emergency architectural service to the country, in time of need, through the organization of many of the offices of its members.

Up to the first of May, one hundred and seventy-five individual architects and firms had volunteered in this work, and the Navy Department gladly availed itself of this service, immediately, and seized the opportunity to start work upon seven projects involving three million dollars' worth of buildings on both our coasts and elsewhere. Surely there could be no better illustration of the value of organizing all the nation's resources along lines of skill and experience.

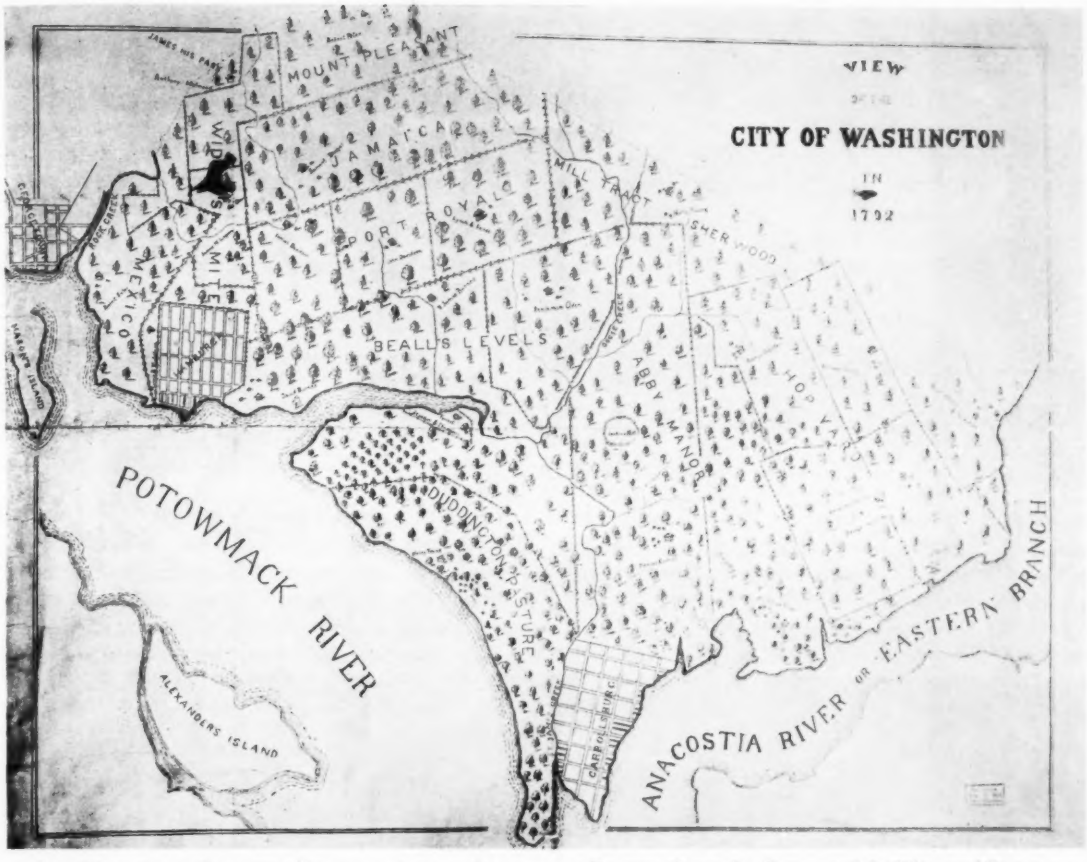
NEARLY 3,000 answers have been received from the circular letter sent out by the Chairman of the Central Committee on Preparedness. A list of the enlistments was published in the last Journal, and a further supplementary list appears elsewhere in this issue. The replies have been carefully analyzed and card indexed according to the location and especial abilities of those architects who responded. Thus, on request of the Government for help of any kind, the Institute can furnish, through the president of the Chapter in the territory where help is required, a list of men suited for the particular work to be undertaken.

This method of classifying and indexing is in conformity with the practice suggested by the departments to whom so many offers of organized service have been made. The press has taken particular pains to point out the mistakes made by England, where the enthusiasm for enlistment caused a serious maladjustment in her industries, professions, and trades, through the loss of the men so skilled in their particular work that their absence diminished production to a point where her armies could not be supplied. Only the most skilful organization will answer at this moment, and war service, to be effective, must be based upon the giving, by each person, of that which he or she is best qualified to give when all the circumstances are taken into consideration. Architects are peculiarly endowed for rendering certain essential services which must be performed as a vital part of the great war machine. The patience required to await the right opportunity will be worth vastly more than the enthusiasm for rushing blindly into work which can best be done by others. We shall make the most haste in this matter by taking counsel with the experience of our allies. Never was the question of organization so vital a factor in the success of a national undertaking.

THE REGISTRATION OF ARCHITECTS is discussed in this number of the Journal by Mr. D. Everett Waid, Treasurer of the Institute, who has made a most careful study of the existing laws on this subject. The new laws passed in the state of Idaho, and pending in the state of Pennsylvania, form the subject of his discussion. It is becoming evident that there is at present a great diversity in the registration and license laws of the different states, and that there are many defects in them which give serious concern to those interested in the ultimate establishment of a law which will not only make a wise provision for safeguarding the public interest but which will also avoid conflicts between the various states. While there may yet be room for a difference of opinion on many points, it would appear that much could be accomplished by coöperating with the Special Committee of the Institute which was appointed for the purpose of just such coöperation. Mr. William D. Bannister, of the Brooklyn Chapter, is the Chairman of this Committee, and we believe that if proposed laws could be submitted for suggestions and constructive criticism, the subject of registration laws would gain much thereby.

We feel that it is never inopportune to restate the basis upon which such laws should be enacted—always for the protection of the public and never for the aggrandizement of the profession, except as the educational and technical requirements imposed by those bodies which have the licensing power will help to raise the standard of architectural equipment. No legislation should be thought of which, even by remote indirection, deprives any intending builder of the right to have his plans made wheresoever he wills and by whom he chooses. Registration laws should be for the purpose of making a distinction between the architect who possesses the knowledge, experience, and skill necessary in pursuing his calling and the man who takes the title to himself as a business expedient. Under any kind of a law it will take many years to change the present conditions, since it is scarcely possible to change a situation which has persevered for many years by legislative enactment. Registration laws of the right kind must aim at an ultimate condition rather than at the immediate and complete correction of those evils from which the public suffers wherever incompetence and inexperience usurp a title which should imply competence and experience in a very high degree.

That these qualities are not always possessed by those who call themselves architects is shown by the fact that 25 per cent of those who applied for registration in New York State were not granted a certificate. These men may still continue their practice and call themselves architects, but the enactment of a registration law does not cause the state to step in and give them a badge of competency. This is a point which should be very carefully studied in all proposed laws; it is manifestly contrary to the public welfare for a state to certify to competency where it does not exist, even though it is without the power to restrain the activities of those who have pretended to possess the ability required to practise architecture, and have thus built up a business which is beyond the reach of the law, under our constitutional safeguards.



Land Selected by President Washington as the Site for the Federal City.—By Courtesy of the Library of Congress

Problems in the Development of Washington

By CHARLES MOORE
Chairman of the National Commission of Fine Arts

As the development of Washington proceeds according to the original plan of the city made by L'Enfant in 1790 and extended by the Commission of 1901, certain special problems arise which require decision in accordance with the general lines of the plan.

The Capitol Group

The House and Senate office buildings have been constructed with the view of creating about the Capitol a group of buildings more or less connected with the legislative branch of the Government. Lands between the Capitol and Union Station have been purchased, and these lands have been cleared of most of the buildings that formerly occupied them. The present conditions are unsightly. Congress should decide as to how this space shall be utilized, whether to enhance the dignity and impressiveness of the approach to the Capitol by creating a series of splendid gardens, or to provide sites for public buildings. When this main question shall have been decided, a plan should be made for this important area. Congress should also determine whether the stoneyards and insignificant buildings shall be cleared from the spaces south and west of the Capitol grounds, so as to put an end to the squalid conditions now existing about that great national building.

The Supreme Court shows no disposition to urge Congress to build a building for its own special use. When the increase in its working force and the consequent demands for space shall compel the Court to quit the Capitol, a building corresponding with the Library of Congress should be built. It is a question as to whether the Maryland Avenue axis should be blocked by this building as the Pennsylvania Avenue axis has been blocked by the Library of Congress, or whether two buildings should occupy the space between North Capitol Street and B Street North, thus leaving Maryland Avenue free.

The Mall

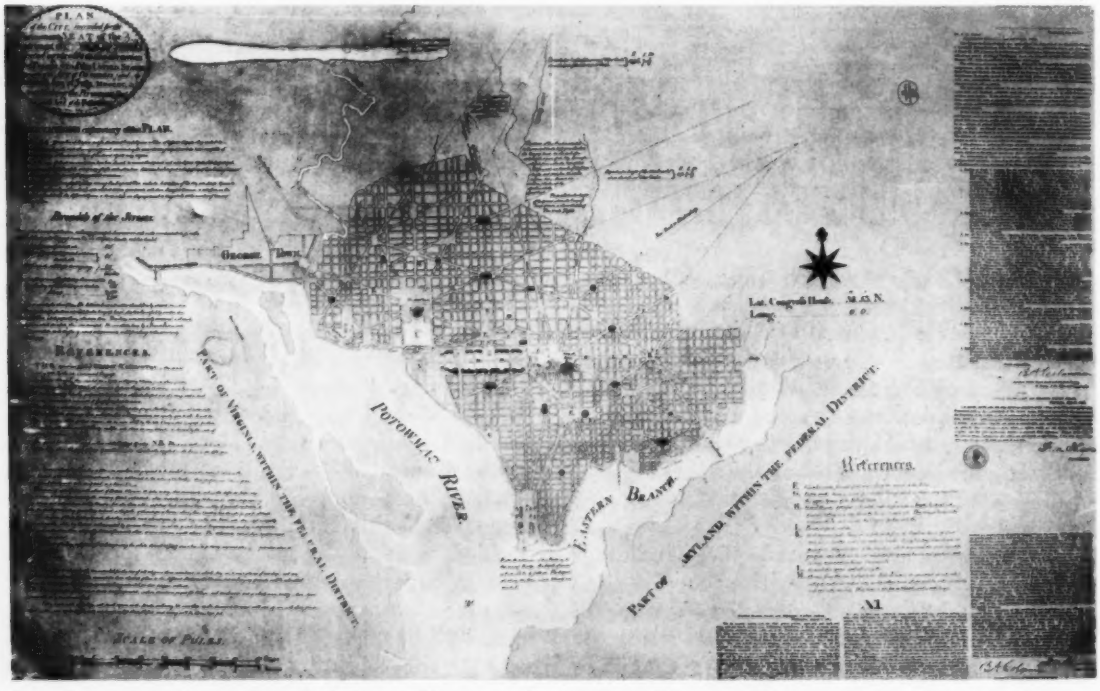
Last year the Senate passed a bill to extend the present Botanic Gardens by taking in an additional section of the Mall. The bill failed in the House, but it has been reintroduced in the Senate, where it has the backing of two influential Senators. Should the bill become a law, the proper development of the Mall will be retarded for many years.

To secure such development the Government paid the Pennsylvania Railroad $1,500,000 to remove its tracks from the Mall, and when he consented to such removal, President Cassatt expressly stated that he did so in order that the Mall plan might be carried out.

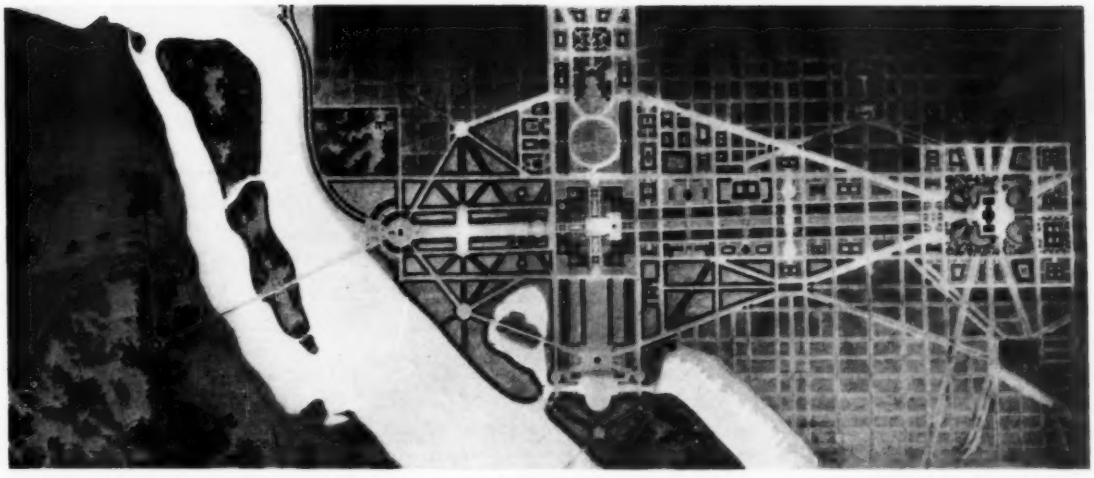
Also, to provide for carrying out the Mall plan, the Agricultural Department buildings were relocated after the excavations for foundations had been begun; and the buildings have been constructed so as to require the lower grades involved in the plan.

The National Museum has been located with reference to the new Mall axis; likewise the Freer Gallery. Trees have been planted, and grading has been begun in accordance with the Mall design.

Congress located the Grant Memorial at the head of the Mall in such manner as to force the removal of the present Botanic Garden to a new and adequate site. The two occupancies are inconsistent in extreme. The Botanic Garden in any location between the Capitol and the Washington Monument cannot be more than a



PLAN PREPARED BY PETER CHARLES L'ENFANT UNDER THE DIRECTION OF PRESIDENT WASHINGTON AND SECRETARY JEFFERSON FOR THE FEDERAL CITY.—By Courtesy of the Office of Public Buildings and Grounds



DEVELOPMENT OF THE CENTRAL COMPOSITION OF THE L'ENFANT PLAN BY THE COMMISSION OF 1901.—Shows the Capitol surrounded by buildings related to legislative activities, and the White House surrounded by departmental buildings; the main axis beginning with the Capitol, extending through the Washington Monument to the Lincoln Memorial; the White House axis beginning with the White House, extending through the Washington Monument gardens, and ending with a site for a great memorial yet to be determined upon; also shows the proposed memorial bridge to Arlington and the location of public buildings south of Pennsylvania Avenue.—Courtesy of the National Commission of Fine Arts.

PHOTOGRAPH OF THE MODEL PREPARED TO SHOW THE ARRANGEMENT OF BUILDINGS ABOUT THE CAPITOL, AND OPEN APPROACH TO THE CAPITOL FROM THE WEST WHERE THE BOTANIC GARDEN NOW STANDS, AND THE ARRANGEMENT OF MUSEUM BUILDINGS ALONG THE MALL.—Courtesy of the National Commission of Fine Arts.

makeshift as a garden, but it can play the part of dog in the manger and delay a systematic development of the space as a great park connection between the Capitol and the White House.

It is essential that this question be settled right and at once.

The Monument Grounds

Nothing has been done to open the White House cross axis of the Mall or to create an appropriate setting for the Washington Monument. This is a subject which may well receive attention from the Washington Monument Association at its annual meeting on January 1, next. There is no need of haste in carrying out the plans, but at least the subject should be discussed as one of the things to be done in the future. As the landscape treatment leading to the Lincoln Memorial progresses, the necessity for an adequate setting for the Monument will be forced on the attention of the public—and the plan for the terraced gardens shown in the plan of 1901 will become apparent.

The Executive Group

When plans were prepared for buildings to accommodate the departments of State, Justice, and Commerce, the area along Fifteenth Street, between Pennsylvania Avenue and B Street North, was found to be too small for the three buildings. Consequently, the State Department was forced over into the Mall. This location never was sanctioned by Congress; and it never should be. The buildings along the Mall should be of a museum character—structures housing collections in which the public primarily is interested.

The plan of 1901 calls for the location of departmental buildings on three sides of Lafayette Square, thus surrounding the White House with structures devoted to executive work. At one time plans were prepared for a building for the combined use of the departments of State and of Justice, to be located on the square west of Lafayette Square, but there was opposition to any combination. Each department desired its own building. The State Department building, as recently planned, would occupy this entire block, and then would accommodate functions too large for the White House. This location should be adhered to for reasons of convenience, both to the department in its intimate relations to the White House and to the people having business therewith, whether callers or members of the clerical force. Such has been the uniform opinion of State Department officials. The Government already owns the old Corcoran Art Gallery and occupies other property situated in this square. The character of the occupancy of the remainder is now such as to enable its purchase on favorable terms. The project should be started at once.

Again, the Government owns the corner on Pennsylvania Avenue and Madison Place, opposite the Treasury Department, and such is the pressure for building-space that probably the site will be built up before long. Any building erected on this site should be designed in such manner as both to preserve the dominance of the White House and also to become a portion of a single building to occupy the entire frontage extending from Pennsylvania Avenue to H Street.

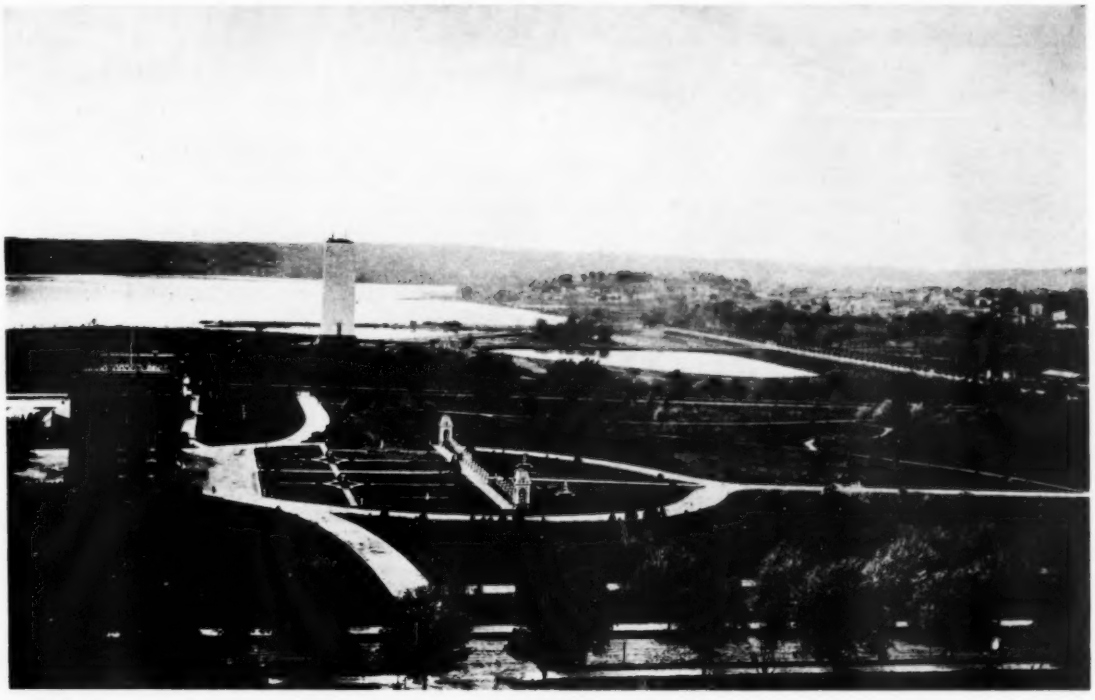
If the Government should now take over the site of the Arlington Hotel and erect thereon a temporary building, in time it could obtain the other frontage along H Street to Sixteenth. In any event, the scheme for a group of executive buildings around Lafayette Square always should be kept in mind.

The Area South of Pennsylvania Avenue

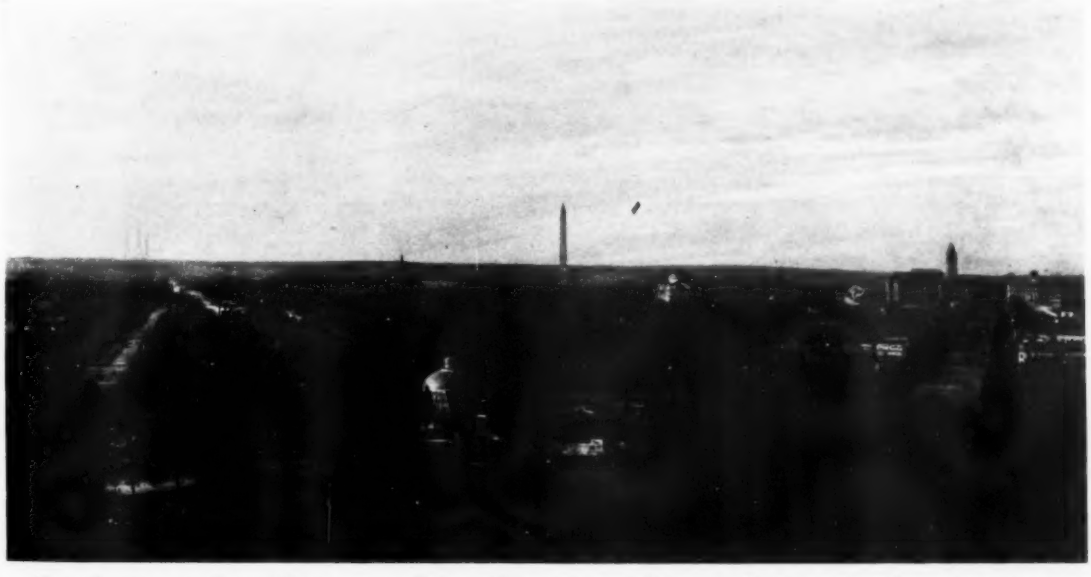
Pennsylvania Avenue will always remain the great thoroughfare of Washington. That portion of the Avenue between the Capitol and the Treasury Department offers appropriate locations for the many buildings which maintain relations with both the legislative and the executive branches of the Government. The market site is fixed by the conditions imposed at the time the market was created, and in case the market shall be removed the land will revert to the heirs of the original owners. It would be unwise, perhaps, to change these conditions. B Street North, however, should be extended with its full width from Sixth Street to Pennsylvania Avenue, thus giving the Mall its proper outlines.

The Lincoln Memorial

The main planting between the Washington Monument and the Lincoln Memorial has been



VIEW FROM THE SMITHSONIAN TOWER ABOUT 1878.—Shows the uncompleted Washington Monument and the overflowed lands which have been filled in to make Potomac Park—about 740 acres in all. The view shows the grounds of the then Bureau of Agriculture in the foreground. Courtesy of the National Commission of Fine Arts.



VIEW SHOWING THE GRANT MEMORIAL, THE BOTANIC GARDEN, AND THE BARTHOLDI FOUNTAIN.—In order to give a proper setting to the Grant Memorial, both greenhouses and fountain must be removed to other locations. The vista from the Capitol to the Washington Monument is yet to be developed. Courtesy of the National Commission of Fine Arts.

put in, but it will take several years before the trees obtain a sufficient growth to impress the public with the general scheme of treatment. The design for the grounds calls for a reflecting basin extending from Seventeenth Street to the Lincoln Memorial, a distance of 2,300 feet. This basin, when completed, will be one of the most charming features of the Mall system. It is essential to the beauty of the plan, and the sooner it is created the more pleasure the present generation will get from the composition. In the erection of memorials in this portion of Potomac Park, extreme care should be exercised in order that no design inharmonious with the great monument to Lincoln shall be permitted in its proximity. This harmony should be historical as well as artistic.

The Memorial Bridge

Very serious problems arise in the treatment of the proposed bridge to connect the Lincoln Memorial with Arlington. There is a question, for example, as to whether the bridge should extend on the axis of the Washington Monument and the Lincoln Memorial, reaching a terminus above Arlington. There is another question as to whether the bridge proper should end at Analostan Island and not be brought to the main land. The channel between Analostan Island and the Virginia bank of the Potomac carries very little water and is in process of being filled up. If the bridge is constructed for so great a length as from the Lincoln Memorial to the Virginia shore, it will require a very elaborate treatment on the slopes of Arlington in order to make a proper termination. On the other hand, if the bridge is kept comparatively short, only a simple and naturalistic treatment of the Virginia approach would be required.

Potomac Parkways

Congress has provided for the connection between Potomac Park and Rock Creek Park along the river to Rock Creek and thence up the Creek to the Zoölogical Park. Most of the difficulties in the way of this improvement have been overcome, and the long-cherished hopes of the citizens of the District interested in the development of lower Rock Creek are about to be realized. The machinery is in such good working order at the present time that Congress may safely increase the appropriations, with the assurance that the money will be economically and efficiently spent.

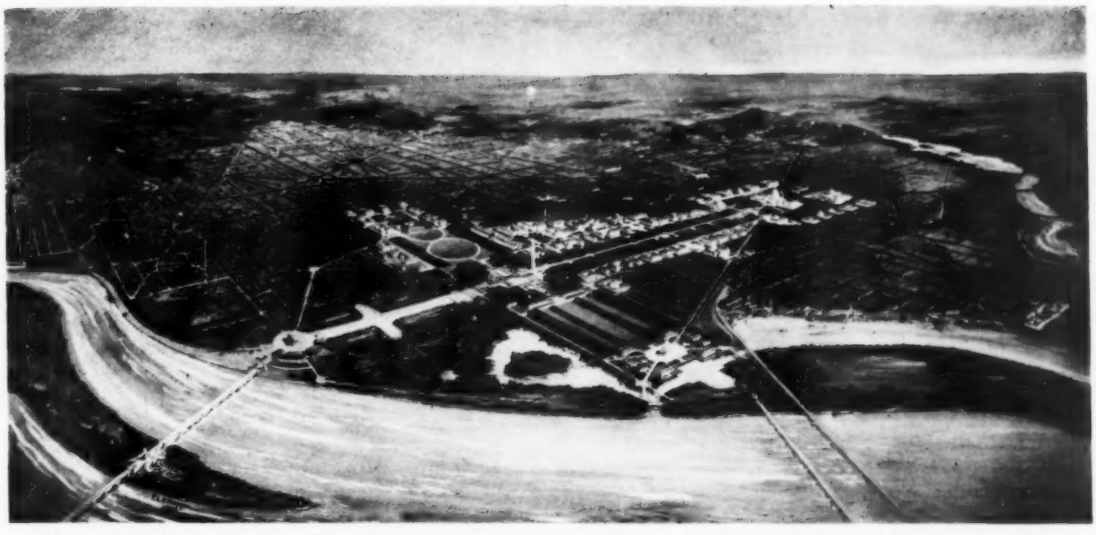
The Washington Channel Boulevard

Serious indeed is the problem of a boulevard connection along the bank of the Washington Channel from Potomac Park to the War College and thence along the Anacostia to the new water park now under construction. This connection was indicated but was not adequately worked out in the plan of 1901, because of uncertainties as to ownership of the waterfront. The Government now has undisputed title to the entire frontage on the Washington Channel, and nothing but the will of the powers-that-be stands in the way of creating on the east a parkway connection quite as necessary to the proper development of Washington as is the Potomac Park and Rock Creek Parkway on the west, for which Congress is spending several millions of dollars. Indeed the creation of the latter makes inperative the construction of the Washington Channel Boulevard, in order to complete the parkway circuit on the south. Now that a comprehension of this fact is spreading among persons concerned with new projects in this locality, there are indications of certain revisions of plans in order to accommodate these large considerations. No structure should be permitted along this waterfront which is so located as to encroach upon Water Street or so designed as to be unsightly from the sports-fields and driveways in East Potomac Park.

Memorials in Washington

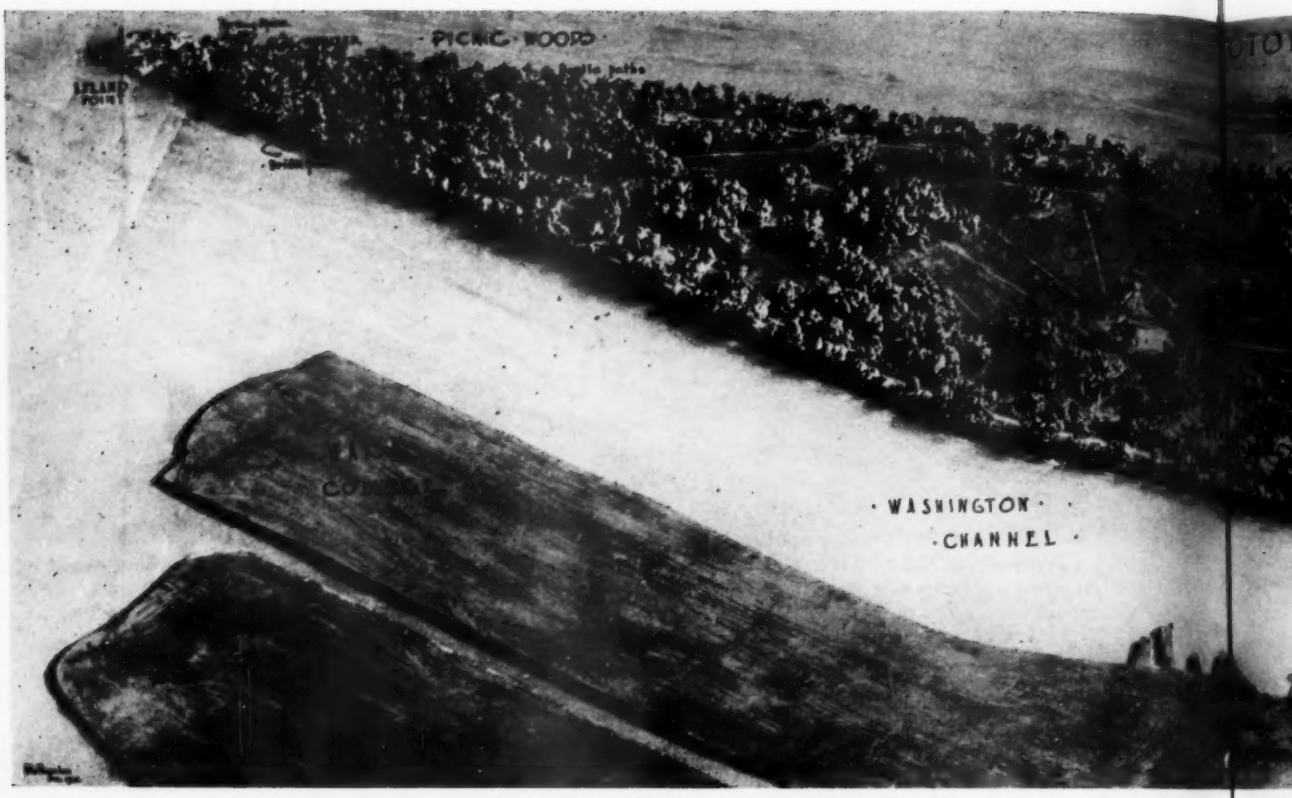
During the first half-century of Washington the city got along without any out-of-door art. It was in 1853 that General Jackson mounted his charger in front of the White House. This is the oldest equestrian statue in the United States. The conclusion of the War of Secession brought about the rapid development of the city of Washington. Also, the time had come when the glad hearts of the people were in the mood to set up memorials to recent heroes. As a consequence, circles and squares were quickly populated by bronze soldiers on foot and on horseback.

As the improvement of Washington proceeds, almost every group of men with a hero desires to find a place for him in Washington. Portrait



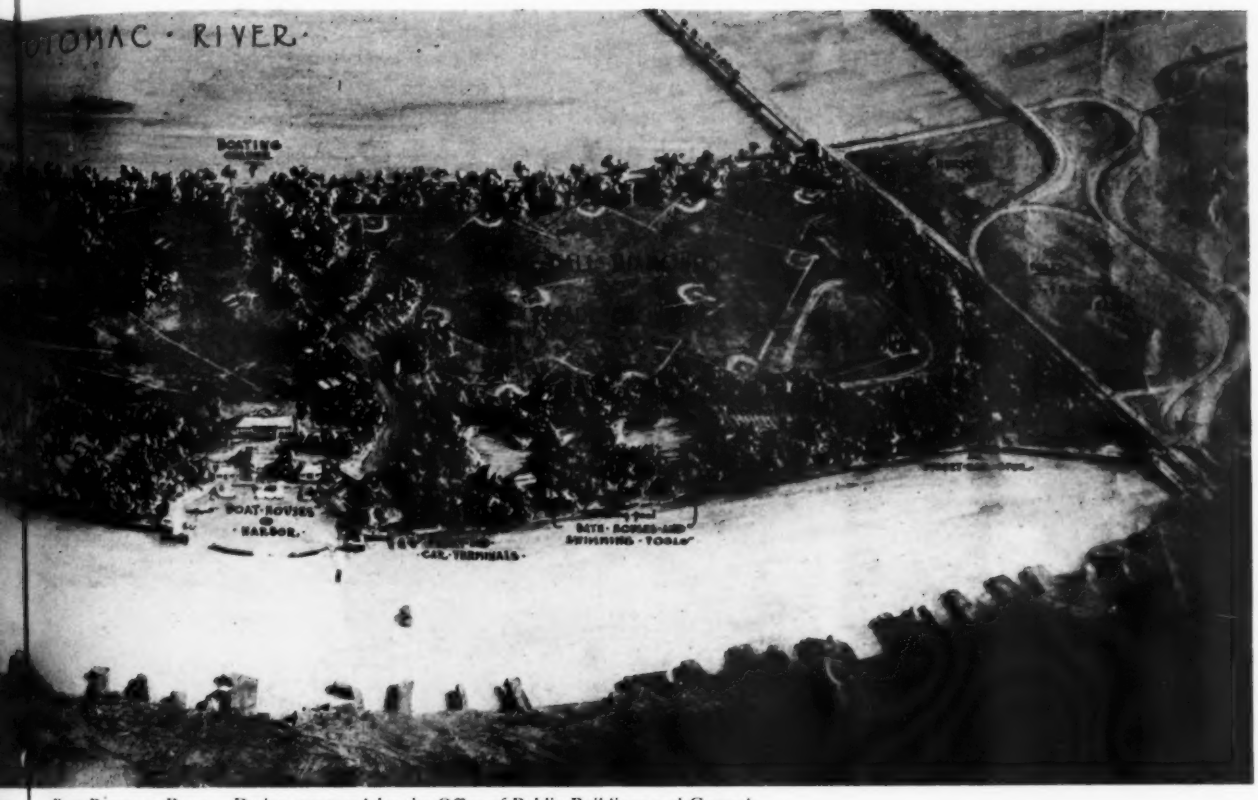
VIEW OF THE MALL SYSTEM.—Shows the actual relations existing between the Capitol, Washington Monument, and Lincoln Memorial, and between the White House, the Washington Monument, and the Memorial Site to be developed; also showing the Anacostia Water Park on the right, the connection between Potomac Park and Rock Creek Park on the left, and the proposed memorial bridge across the Potomac.

EAST POTOMAC PARK, CREATED BY DREDGING THE POTOMAC RIVER AND NOW AWAITING DEVELOPMENT.—The view shows the Tidal Basin, a portion of West Potomac Park, the Bureau of Engraving and Printing on the left, and the White House propagating gardens and greenhouses in the foreground. Taken from the top of the Washington Monument.—Courtesy of the National Commission of Fine Arts.



From a Photograph of the Model Showing the Proposed Development of East

Union Square.—The proposed approach to the Capitol from the west. A study based on L'Enfant's plan of 1791 approved by President Washington. The Botanic Garden at present occupies this area. Courtesy of the National Commission of Fine Arts



East Potomac Park.—Design prepared by the Office of Public Buildings and Grounds

View of the Monument Gardens.—The central pool in front of the monument is on the axis of the White House. In 1901 the axis of the Mall was changed to bring the Washington Monument in line with the dome of the Capitol and to bring the Monument gardens into proper relations with the White House. The National Museum, the Agricultural Department Buildings, Freer Art Gallery, and the Lincoln Memorial, have been located in accordance with the new axis. Courtesy of the National Commission of Fine Arts.

statues, like portrait paintings, are interesting to the family, but are rarely works of art. The rule should be laid down, and vigorously enforced, that *no statue or memorial shall be located in Washington unless such statue or memorial is a distinct contribution to the general scheme of the development of the city and adds an artistic element thereto.*

Washington needs fountains, just as Rome did, and a memorial may properly and with advantage take the form of a fountain. There are now two such fountains in Washington, and soon there will be a third and perhaps a fourth. Both are in themselves works of art and enhance the attractiveness of the city as well as honor the men whose names are connected with them. Memorials may also take other forms that express artistic conceptions. The subjects of these memorials should be limited, however, to persons whose reputations are national in character and high in quality. Congress should be very jealous as to the admission of candidates for this particular form of immortality.

The foregoing are some of the problems which readily suggest themselves in connection with the development of Washington. It would be quite easy to multiply the number several times.

The one object to be kept in mind constantly and rigorously is the ideal development of the National Capital, typifying the aspirations of the people, and the achievements of the Nation, so expressed as to make the city of Washington a unified, dignified, and impressive work of art.

MEMORIAL FOUNTAIN ERECTED IN MCMILLAN PARK, WASHINGTON

Erected by citizens of Michigan in honor of James McMillan, Senator from Michigan, 1889–1902. Herbert Adams, Sculptor; Charles A. Platt, Architect. The design of the fountain was passed upon by the Commission of Fine Arts. A type of memorial suited to the development of the District of Columbia.

THE MEMORIAL TO FRANCIS DAVIS MILLET AND ARCHIBALD W. BUTT

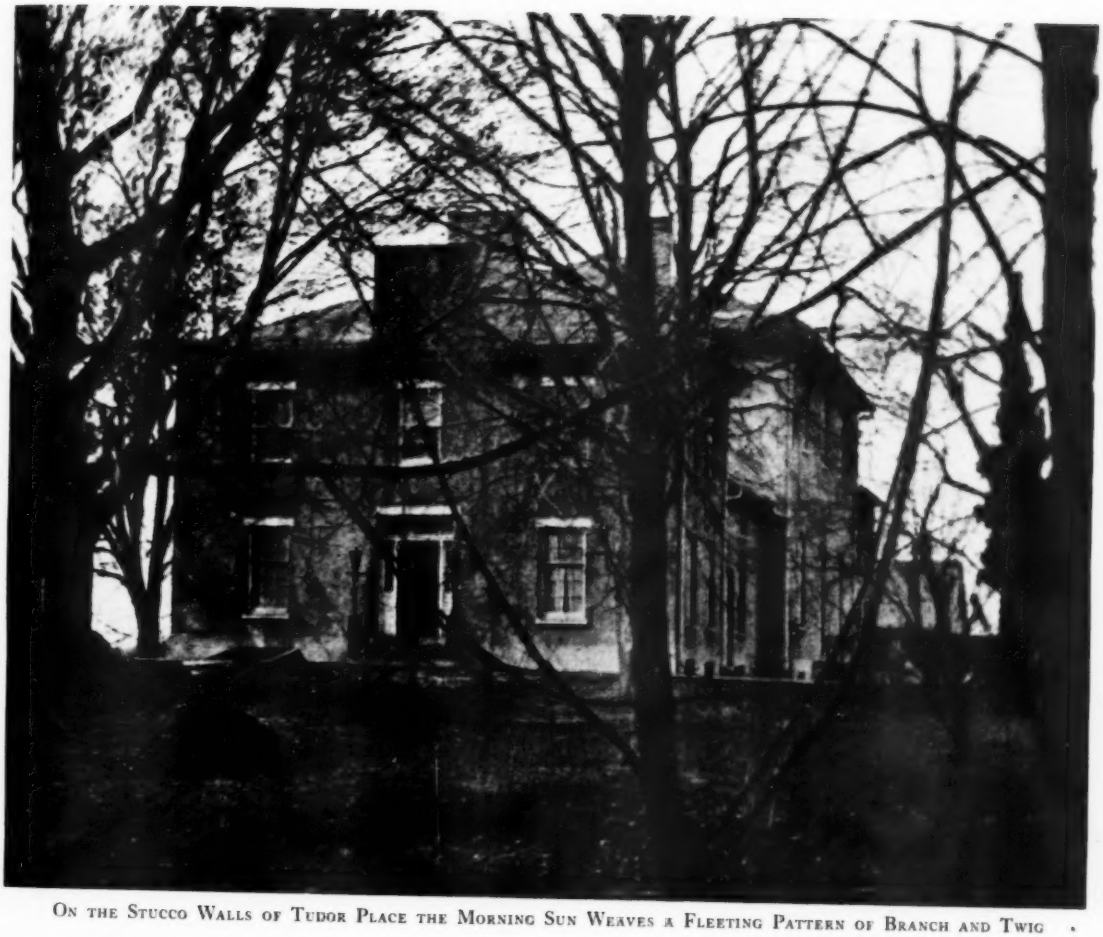
A type of memorial adapted to the adornment of the National Capital. Daniel C. French, Sculptor; Thomas Hastings, Architect.—Courtesy of the National Commission of Fine Arts.

New Hampshire Avenue in Early Spring

Magnolias, Ivory-White and Coral-Pink, with a Background of Delicate Poplar Green

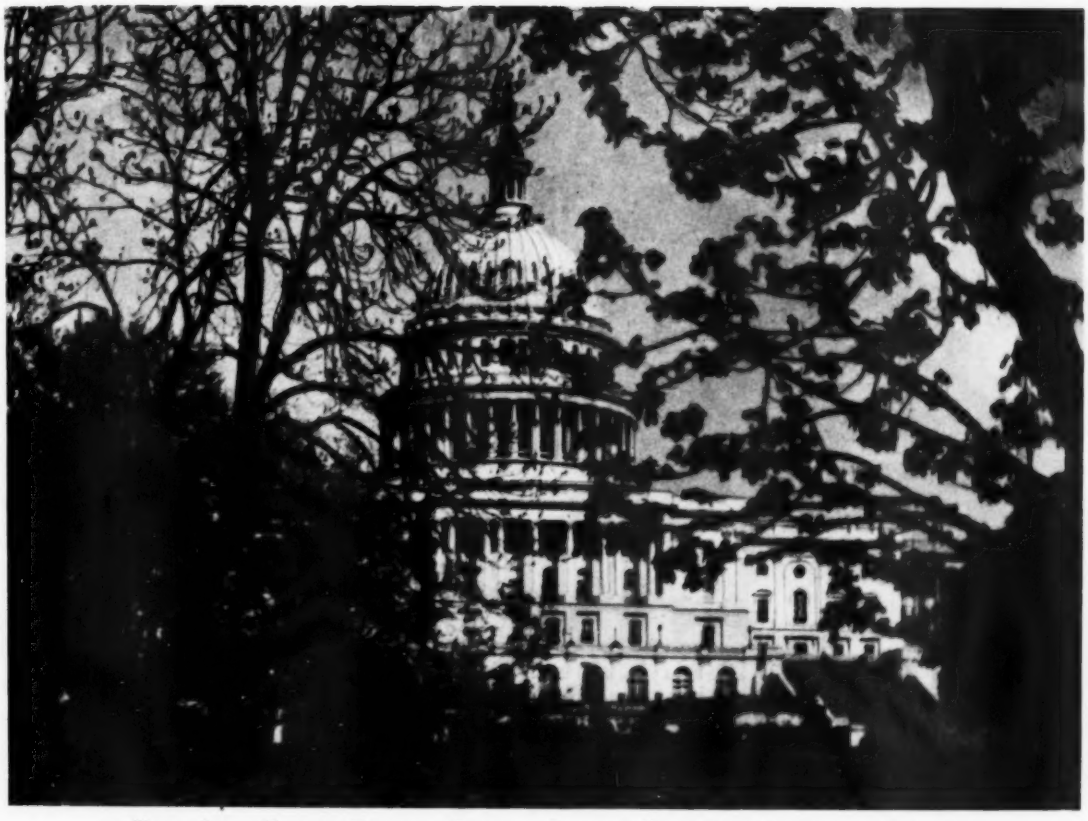
THE ENCHANTRESS OF WASHINGTON IS SPRINGTIME, WHO WRAPS THE CAPITOL IN A CLOUD OF SHIMMERING GREEN

THE MANSION IN GEORGETOWN KNOWN AS TUDOR PLACE.—Designed by Dr. William Thornton, the architect of the Capitol and of the Octagon House.



On the Stucco Walls of Tudor Place the Morning Sun Weaves a Fleeting Pattern of Branch and Twig

THE SIMPLE DIGNITY OF THE DAYS WHEN GEORGETOWN LOOKED ACROSS ROCK CREEK TO WHERE WASHINGTON WAS TO RISE FROM THE SLOPING PLAIN BESIDE THE POTOMAC



There Are a Hundred Frames of Leaf and Bough in Which One May Set the Capitol

CHANGELESS, YET EVER CHANGING! WONDERFUL BY DAY—MORE WONDERFUL ON A STARRY NIGHT!

Solemn, Dignified, Serene! Sometimes it Seems the Symbol of an Infinite Patience with the Transient Vanities of Men

LIKE A BENEFICENT SENTINEL RECALLING MEN TO THE LOFTINESS OF THAT PURPOSE WHICH A GRATEFUL NATION HAS HERE ENSHRINED

Beaux-Arts Institute of Design

Official Notification of Awards—Judgments of March 27 and April 10, 1917

Municipal Art Society Prize and Class "A," Fourth Projet

Jury of Award.—F. A. Godley, J. O. Post, L. Warren, F. H. Bosworth, Jr., C. W. Stoughton, R. F. Almirall, D. Barber, T. E. Blake, J. W. Cross, R. H. Dana, Jr., E. V. Meeks, S. Codman, M. S. Wyath, P. Schulz, H. L. Shay, Professor Leonard, H. W. Corbett, J. Wynkoop, F. C. Hirons, G. A. Licht.

Jury of Award for Awarding of Prize.—F. A. Godley, J. O. Post, L. Warren, F. H. Bosworth, Jr., C. W. Stoughton, R. F. Almirall, D. Barber, T. E. Blake, J. W. Cross, R. H. Dana, Jr., M. S. Wyath.

Program.—A Harbor Entrance. *Drawings submitted*, 92.

Awards.—First Prize ($50 and First Medal), A. C. Webb, Atelier Wynkoop, New York City.

Second Prize ($25 and First Medal), M. E. Boyer, Jr., Carnegie Institute of Technology.

First Medals, H. L. Smith, Carnegie Institute of Technology; R. W. Blaine, University of Pennsylvania.

Second Medals, R. S. Simpson, B. Cardwell, and P. O. Klingensmith, Carnegie Institute of Technology; O. E. Reagan, Columbia University; P. H. Harbach, Cornell University; J. Siegel, Atelier Hirons, New York City; L. Suckert and W. T. Sprout, Jr., University of Pennsylvania.

Class "A," Fourth Esquisse-Esquisse
Class "B," Fourth Esquisse-Esquisse

Jury of Award.—W. Emerson, W. Lamb, P. A. Cusachs, W. L. Bottomley, H. M. Woolsey, F. B. Chapman, H. R. Sedgwick, F. H. Haskell, G. H. Bickley. This Jury also served as Jury of Award for Class "A" and "B" Archæology, Fourth Projets and Measured Drawings.

Program.—Class "A," A Park Entrance. *Drawings*, *34*.
Class "B," A Stairway. *Drawings*, *43*.

Awards.—Class "A," Third Medals, J. P. Morgan, Carnegie Institute of Technology; L. C. Licht, University of Pennsylvania.

Mentions, E. R. Froese, Atelier St. Louis; P. J. Weber, University of Pennsylvania.

Class "B," First Mention, P. R. Williams, Los Angeles Architectural Club. Mentions, A. B. Lincoln, Atelier Hirons, New York City; R. A. Lockwood and S. H. Brown, Los Angeles Architectural Club.

Class "A" and "B" Archæology, Fourth Projet

Program.—A Dutch Living-Room. *Drawings*, *16*.

Awards.—Third Medals, H. F. Almon, George Washington University.

Mentions, W. W. Roche and M. A. Higgins, Catholic University; H. F. Bremmer and W. J. Richards, Carnegie Institute of Technology; P. Meng, Atelier Hirons, New York City.

One Measured Drawing was submitted in this competition on which the following award was made: Mention, H. Marceau, Columbia University.

Pupin Prize Competition

Jury of Award.—F. A. Godley, W. Emerson, F. H. Bosworth, Jr., W. Lamb, J. O. Post, W. L. Bottomley, R. F. Almirall, D. W. Candler.,

Program.—A Clock. *Drawings submitted*, *42*.

Awards.—First Prize ($50), R. W. Hubel, Detroit; Second Prize ($25) G. M. D. Lewis, University of Pennsylvania; Placed, T. H. Buell, Columbia University; R. J. Richardson, Atelier Corbett, New York City.

Judgment of April 10, 1917

Class "B," Fourth Analytique

Jury of Award.—F. H. Bosworth, Jr., L. Warren, J. A. Gurd, G. A. Licht, H. W. Corbett, H. R. Sedgwick, H. P. Pennington, J. F. Harbeson.

Program.—A Loggia. *Drawings submitted*, *134*.

Awards.—First Mention Placed, D. T. Hird, Carnegie Institute of Technology; G. F. Axt, Atelier Hirons, New York City.

First Mentions, A. C. Denison, B. J. Schreyer and L. G. Noyes, Columbia University; H. W. Stone and C. E. Silling, Carnegie Institute of Technology; J. A. Sovis, Cleveland Architectural Club; L. R. Warriner, Atelier Corbett, New York City; J. W. Wilson, and S. W. Konvalinka, Atelier Hirons, New York City; I. D. Harris, Atelier Swaine, San Antonio.

Class "B," Fourth Projet

Jury of Award.—F. A. Godley, C. L. Lawrance, W. Lamb, J. C. Mackenzie, Jr., H. Hornbostel, F. C. Hirons, Professor Burnham, W. P. Barney, A. Ware, B. Hoyt.

Program.—A Stairway. *Drawings submitted*, *88*.

Awards.—First Mention Placed, J. P. Thompson and A. E. Middlehurst, Cornell University; R. G. Bergstrom, Carnegie Institute of Technology; A. B. Lincoln and M. E. Lavanoux, Atelier Hirons, New York City.

First Mentions, J. S. Whitman, W. Dunbar, C. A. Holcomb and W. G. French, Cornell University; J. P. Morgan, Carnegie Institute of Technology; O. Blomstergren, Columbia University; W. F. Kussin, Atelier Hirons, New York City.

Second Loeb Prize

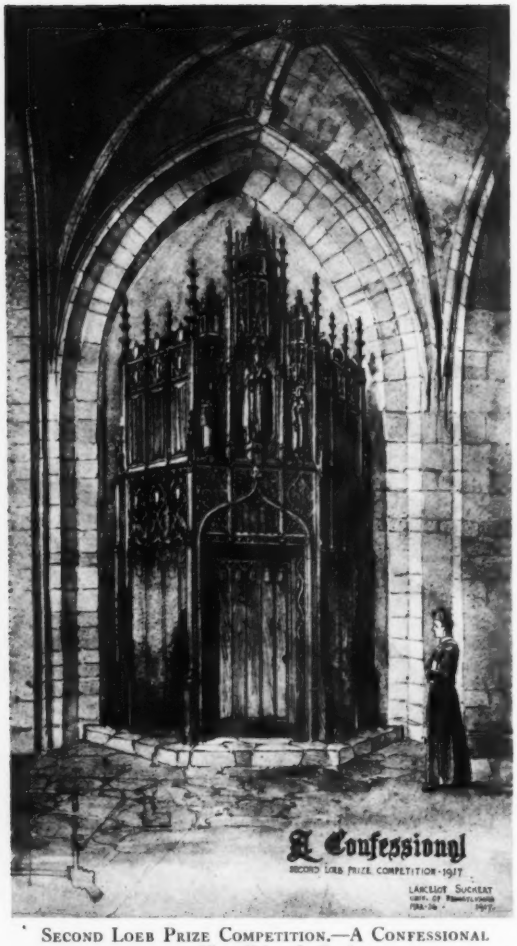
Jury of Award.—F. A. Godley, W. Emerson, F. H. Bosworth, Jr., W. Lamb, W. N. Taylor.

Program.—A Confessional. *Drawings submitted*, *24*.

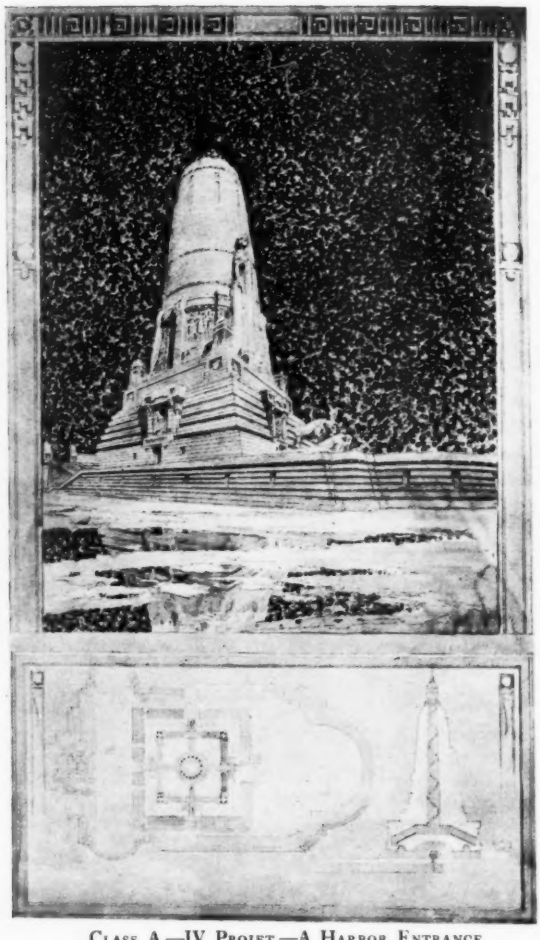
Awards.—First Prize ($50), L. Suckert, University of Pennsylvania; Second Prize ($25), W. F. McCaughey, Atelier Rebori, Chicago; Placed, M. E. Boyer, Jr., and C. H. Sorber, Carnegie Institute of Technology; F. J. Schlosser, Cleveland Architectural Club; J. J. Wade, Atelier Wynkoop, New York City.

(The First and Second Prize Drawings in the Pupin Prize Competition will be published in June.)

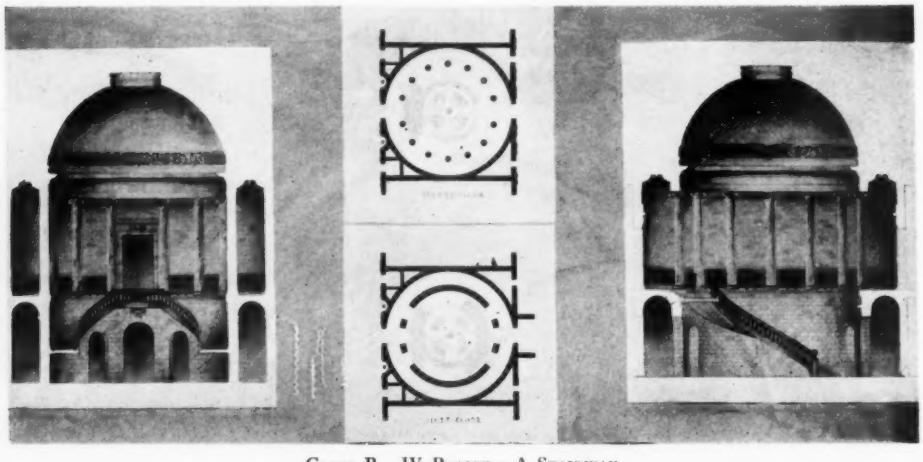
CLASS A AND B.—ARCHÆOLOGY.—IV PROJET—A DUTCH LIVING-ROOM
Third Medal, H. F. Almon



Second Loeb Prize Competition.—A Confessional
First Prize, L. Suckert

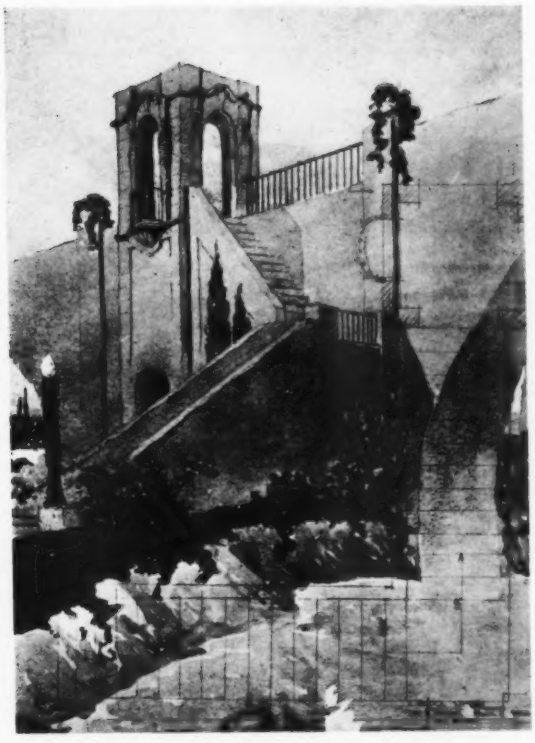


Class A.—IV Projet.—A Harbor Entrance
First Medal and First Prize in Municipal Art Society Prize,
A. C. Webb

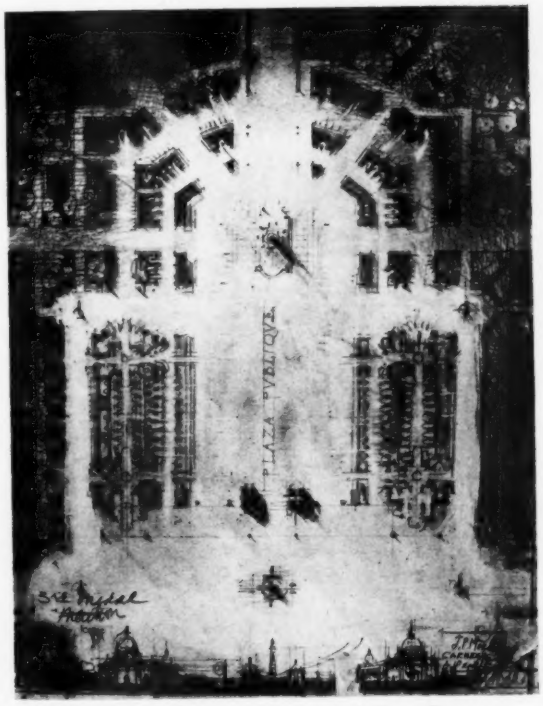


Class B.—IV Projet.—A Stairway
First Mention Placed, J. P. Thompson

CLASS B.—IV ANALYTIQUE.—A LOGGIA
First Mention Placed, H. D. Hird

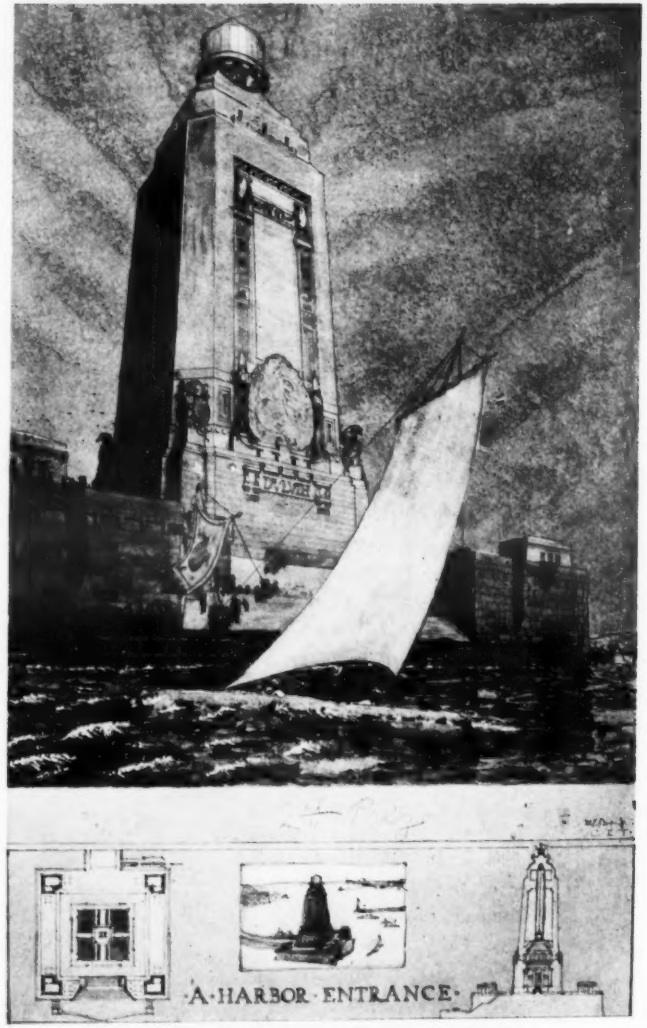


CLASS B.—IV ESQUISSE-ESQUISSE.—A STAIRWAY
First Mention, P. R. Williams



CLASS A.—IV ESQUISSE-ESQUISSE.—A PARK ENTRANCE
Third Medal, J. P. Morgan

SECOND LOEB PRIZE COMPETITION.—A CONFESSIONAL
Second Prize, W. F. McCaughey



CLASS A.—IV PROJET.—A HARBOR ENTRANCE
First Medal and Second Prize in Municipal Art Society Prize, M. E. Boyer, Jr.

CLASS A.—IV PROJET.—A HARBOR ENTRANCE
First Medal, H. L. Smith

How Shall We Teach Something About Art?

III. Basis of Esthetic Education

By FREDERICK L. ACKERMAN

As a general background against which I wish these thoughts to stand in silhouette, it should be stated that my conception of art, of esthetic values in life, corresponds—in fact, is based upon—the philosophy expressed in Santyana's "Reason in Art." This conception includes both the nature of art itself and the part it actually plays in the "Life of Reason." I also base my conception of what constitutes education upon the educational philosophy expressed by Dr. Dewey in his various writings upon that subject. In particular, I refer to his article in *The New Republic* of July 1, 1916, entitled "American Education and Culture."

The question with which we are primarily concerned is usually phrased as: How can we teach art? Sometimes it is: How can we teach appreciation of art? With not a few—in fact, with the vast majority—either of these questions expresses quite accurately what they have in mind. I am, however, not satisfied with these questions, for they fail to express the fundamental nature of the problem; and our conception of what is meant by the word "teach" focuses our attention immediately upon our traditional methods of imposing ideas or values, thus limiting our inquiry to the processes or the technique of teaching art. It is almost impossible to frame a question of this nature which expresses with any degree of accuracy the vague, questioning attitude which motivates our inquiry. Art, esthetics, teaching—each has accumulated a group of associate ideas which carry quite as much error as truth. The underlying thought and something of the attitude of inquiry may be expressed by the question: How can we stimulate an appreciation of esthetic values? This question is, I admit, inadequate, but it has the merit of shifting our associate ideas from the field of matter, things, art objects, to that of thought, of impulse and reaction.

Those of us whose conscious purpose has found expression in the desire to teach art or its appreciation surely agree with Dr. Dewey when he says: "I am one of those who think that the only test and justification of any form of political and economic society is its contribution to art and science—to what may roundly be called culture. . . . That America has not yet so justified itself is too obvious for even lament." It is indeed strange how little of this purpose has found expression in our teaching; how little it is understood by the many who write upon art, and how completely and utterly it is ignored by those who teach art or who are themselves artists. In our primary and secondary schools, in our preparatory schools and universities, there is little evidence that this thought has been given consideration.

One of the larger problems of modern education is that of developing a concept of life in which art—esthetic values—appear as a very definite goal of endeavor. In our system of formal education the value of art, the value of the esthetic, is ignored. This is the fundamental reason why our environment is so ugly, why our life seems so empty and purposeless. "Of all reason's embodiments art is . . . the most splendid and complete. Merely to attain categories by which inner experiences may be articulated, or to feign analogies by which the universe may be conceived, would be but a visionary triumph if it remained ineffectual and went into no actual remodeling of the outer world, to render man's dwelling more appropriate and his mind better fed and more largely transmissible. Mind grows self-perpetuating only by its expression in matter. What makes progress possible is that rational action may leave traces in nature, such that nature in consequence furnishes a better basis for the Life of Reason; in other words, progress is art bettering the conditions of existence."

Modern, formal education has held no such conception of progress as this. It has assumed that progress came first, and that then art might be applied to what resulted from progress. That esthetic values, that art, were material factors, were essential factors, is an idea which is not included in education's conception of its purpose. Education has recognized that there have been esthetic values in the past, and our art teaching for the greater part has centered about the dry and uninteresting process of cataloguing them. Our teaching about art has treated the entire field of esthetic expression as that which might be shifted about, quite as we shift pictures about in a room or change their frames. Our descriptive phrases have been little more than the faintest echoes of reality, with the result that the values we have set up appear not as the expression of life's impulses or as the stepping-stones of progress, but as something which has been thrown off by life in its progress through the centuries.

The broad problem, as I see it, is quite clearly stated by Dr. Dewey:

"Our public education is the potential means for effecting the transfiguration of the mechanics of modern life into sentiment and imagination We may, I repeat, never get beyond the mechanics. We may remain burly, merely vigorous, expending energy riotously in making money, seeking pleasure and winning temporary victories over one another. Even such an estate has a virility lacking to a culture whose method is reminiscence, and whose triumph is finding a place of refuge. But it is not enough to justify a democracy as against the best of past aristocracies even though return to them is forever impossible. To bring to the consciousness of the coming generation something of the potential significance of the life of today, to transmute it from outward fact into intelligent perception, is the first step in the creation of a culture. The teachers who are facing this fact and who are trying to use the vital unspiritualized agencies of today as means of effecting the perception of a human meaning yet to be realized are sharing in the act of creation. To perpetuate

in the name of culture the tradition of aloofness from realistic science and compelling industry is to give them free course in their most unenlightened form. Not chiding but the sympathy and direction of understanding is what the harsh utilitarian and prosaic tendencies of present education require."

This does not imply that all reference to art teaching should be omitted from our system of public education. It is rather suggested that we direct our efforts toward the problem of selecting those impulses which appear as most worthy and significant in modern life, and of guiding and directing those impulses to a more worthy expression. We flatter ourselves that our teaching in general and our teaching of art in particular are acts of this nature. It seems to me that by such an attitude we but fool ourselves and broaden the chasm which separates art and life.

To formulate an educational program which would accomplish this immensely difficult task is not the work of a day or many days. It is rather a theme for educational experiment. But educational experiment must have a beginning, and in view of establishing such a beginning I offer a few tentative suggestions which, while stated broadly in principle, at least apply to the entire field of formal education.

Our courses in the history of art or in appreciation of art are presented to the student as subjects in which the principal object is to distinguish what concensus of opinion has come to label the "good" and the "bad." This effort, as far as true appreciation is concerned, is worse than futile; for instead of developing an inquisitive attitude of mind in the student, independent thinking is suppressed by our acts of forever presenting conclusions.

We must understand about forms and form expressions of the past; such knowledge is essential to progress. We must also understand something of social history in order to progress. And in the same way that we should reach back into the past and link up social conditions of today with the background of events, so should we study form expressions.

Social conditions, past and present, should be examined through the two vehicles of expression, language and form (physical environment), not in isolated courses arranged remotely from each other in the curriculum, but in one and the same course. These two methods of expressions, language and form, were simultaneous, and if we hope to present the picture of the past with any degree of truthfulness, then these two expressions should be considered simultaneously in education.

Our courses in drawing are presented as courses in art; and the value of art not being well understood, drawing is naturally relegated to a place in the background of education. Drawing should not be presented as having as its direct object the production of art. It is in its essence a mode or manner of expression, a method of conveying ideas. It is like language in this respect.

Instead of isolating the subject of drawing and treating it as one in which the end is the production of pictures, it should become the vehicle—as language is the vehicle—through which ideas relating to every subject in the curriculum might be more clearly explained. The art of drawing—graphic representation—is in its essence the art of simple and direct statement. If one considers for a moment the simple forms scratched on the rocks by savage tribes, the truth of this statement is evident. These crude scratches may be the highest form of art, but it must not be forgotten that the purpose was direct expression. Drawing taught from this angle tends directly toward developing the power of simplification, of choosing the essentials and of making ideas vivid. There is no subject in the entire curriculum which possesses an equal value in this respect. If taught solely as a means to art production, its greater value is lost because technique immediately becomes the all-absorbing theme of interest. Drawing should be conceived as a form of expression.

Our first step in the teaching of geography might well emphasize a consideration of our immediate environment, not in view of merely learning the names of places, but from the standpoint of considering what man has made of his surroundings. If we have not made proper use of the natural advantages, if we have not provided sufficient open spaces, if we have polluted our rivers and destroyed their value from the recreation standpoint as well as endangering the health of communities, these might be considered as well as the mere physical features.

We teach the principles of ethics and moral relationship in the main through drawing upon the past. Our environment might well serve as the illustration if we wish to develop an understanding of what is meant by the application of moral principles to life. Improper housing, inadequate provision for light and air and recreation facilities, the effect of the greed of individuals in their use of property can all be made to illustrate the point that our conception of life is faulty. It is not necessary for us to establish a system of relative esthetic values. We may perfectly well leave this to the student to judge or appraise. What is essential is that in our general scheme of education we should point out that esthetic expression bears a definite relation to the social condition which produces it. It is only through some such inductive or suggestive process that it is possible to develop an appreciation of art which will represent more than the mere memorizing of phrases.

New Fellowships in the American Academy in Rome

To the Editor:

I am much pleased to note the appreciative comments of the Journal on the annual report of the American Academy in Rome. May I, however, ask you to correct one statement made therein to the effect that a fellowship was made possible through the contribution of Mr. A. W. Mellon? Mr. Mellon has been a generous contributor of a kind which we should greatly like to see largely increased in number, but the particular contribution to which you refer is the gift of Mr. A. D. Juillard.

It is of very great interest to know that, since the publication of the last report, the family of the late Daniel H. Burnham has contributed to the endowment fund of the Academy an amount sufficient to endow another Fellowship in Architecture, which is to be a memorial of Mr. Burnham and to bear his name.

Yours very truly,

C. Grant La Farge, *Secretary.*

Idaho's New Registration Law and the Proposed Law for Pennsylvania

Idaho is the twelfth state (if our list is correct) to enact a Registration law. The law is entitled "An act to provide for the licensing of architects, and regulate the practice of architecture in the state of Idaho."

Despite its title and its length (3,000 words against New York's 1,300) one may hazard the guess that Idaho has one of the best laws yet passed. The following notes are intended to mention some of the salient details and also some of the serious faults of this law.

Board of Examiners: Five, one an architect or engineer member of the faculty of the state university and four architects of five years' experience. Five years might better be ten if art in the state were older. Term of office four years. Five might be better, thus bringing in not more than one new member each year.

The surplus fees paid over annually to the State Treasurer, instead of going into the general fund, "shall form the nucleus of a fund to provide for an advanced course of architectural study to be established in the University of the State of Idaho."

A regrettable feature of this law is that every man in the state who called himself an architect before the law went into effect can demand a license. In effect the Board of Examiners has no discretion but must issue to each a badge of competency, however poorly qualified he may be. This provision not only prolongs the time for raising the standard of education but at one stroke holds before the public the most unworthy architects as a standard sufficient for registered or licensed architects. That means a low standard which cannot be eradicated from the public mind in generations. The respect of the public for the profession will be deserved if a reasonably high standard of character and competency is adopted at once. Incompetent men may continue to exercise any right they had when the law went into effect, but a registration law should not place a seal of approval upon them.

One superfluous requirement of this law, which is a highly expensive and annoying nuisance, is that each architect must have a seal which is to be impressed on all drawings and specifications. Why not as well require physicians to seal every prescription?

Section XIX of this law undertakes the task of defining the word "architect" as one who designs or supervises buildings for others and to be constructed by persons other than himself, and proceeds by a peculiar definition of "a building" to eliminate from architecture pergolas or park shelters, smokestacks or railway track sheds a mile long, simply because they do not possess all of the three assumed essentials of a building, namely, "foundation, walls and roof."

Civil engineers are not limited to practice under their own proper title but are also required to call themselves architects if they design buildings. This will surely lead to jealousy and friction.

It seems hardly fair or wise to prohibit engineers from doing buildings under their own title. If they *wish* to call themselves architects then they should be required to qualify on the artistic side of architecture. Instead of trying to force engineers who may have no artistic inclinations to qualify esthetically, it is better surely to encourage engineers and architects to coöperate. An architect and an engineer in partnership make an admirable team, for instance, to do factory work.

A bill has been introduced in the Pennsylvania legislature which it is to be hoped will be amended before passage, but which, as introduced on April 2, 1917, on account of its good and bad features is worthy the study of other states where similar legislation is in prospect. In the first place its title is in excellent legal form, exact and comprehensive of the content of the act.

The bill provides seven in the Board of Examiners—two professors of architecture, one professor of engineering and four architects of ten years' practice, and all members of the American Institute of Architects.

"Architect" is better defined than in the Idaho law since the meaning of "building" is not limited.

The secretary and the treasurer of the Board of Examiners are given a combined total of $750 per year, and the other members must serve without pay beyond reimbursement for actual expenses. This, if legal, is surely a mistake. Few honest men can afford to give such laborious service for nothing, and others would be tempted to use their office and its influence dishonorably. Ten dollars a day for actual service is not open to serious criticism one way or the other.

The age twenty-five, general education two years high school, and experience of seven years—these requirements are an improvement over the New York law.

The reciprocal relation with other states as expressed in this bill is a conditional privilege which is likely to hamper the Board of Examiners in cases on which it would like to act. Compare with the New York and Idaho laws.

It may be predicted that $10 per year for renewing the license will be regarded as an objectionable tax.

The Board of Examiners is to own seals for all architects in the state and will have the pleasure of issuing and recalling and reissuing these seals. The architects pay the cost and enjoy as best they can applying impressions to all their drawings and specifications. Surely there is trouble enough without paying for such useless gratuities.

Pennsylvania in this bill proposes the same serious mistake which Idaho has made in giving every so-called architect a license tag. If the law is intended to encourage education and is to discriminate in future with higher standards, why not begin at once with at least some reasonable standard and grant certificates to architects now in practice who are doing legitimate work and refuse registration to those who cannot show an honest record and at least one or two decent buildings? Professional practice laws should fix some measure of skill and ability. Licenses are issued to peddlers and taxicabs for a different fundamental reason.

D. Everett Waid.

Book Reviews

City-Planning Progress in the United States.

Prepared by the Committee on Town-Planning of the American Institute of Architects. Edited by George B. Ford and Ralph F. Warner. Published by the Journal of the American Institute of Architects, The Octagon, Washington, D. C. $1.70 postpaid.

In its publication of "City Planning Progress in the United States—1917," the Institute's Committee on Town Planning has brought to completion a monumental work. The term monumental is used, not to suggest that the work is heavy—for it belongs to that class in which excellence of proportion, harmony of parts, and a certain lightness of detail give grace and charm—but, rather, to suggest its size and the permanence of its value, both commemorative and inspirational. The book is edited by George B. Ford, assisted by Ralph F. Warner, Mr. Ford being the chairman of the Town Planning Committee. Though he is himself one of the most prominent of American city planners, with many notable achievements to his credit, he has done, perhaps, nothing of greater importance to the profession that the preparation of this remarkable book.

To anyone who doubts the hold which city planning has taken upon practical Americans, or who questions the worth-whileness of the work done in its name, this volume makes conclusive reply. The data covers what has been accomplished, or is projected, in city planning in all cities of the United States of over 25,000 inhabitants, and in a few cities and towns where the population is even smaller but where the work is of special interest. The Editor declares that every statement is taken "either from authentic published reports or from signed statements made by responsible authorities in the respective communities," nothing having been accepted simply on hearsay. The reviewer may properly add that the mass of material thus obtained has been so well boiled down, and the unimportant and irrelevant matter (of which there must have been much) so fully eliminated that the Editor has been able to tell in something less than two hundred pages, clearly and interestingly, as well as concisely, the city planning ambitions and achievements of between two and three hundred communities. And not only that. He has been able, at the same time, to include scores of pertinent illustrations. The truth is, it is very hard not to write of the book wholly in superlatives. For once, the reviewer is tempted to speak of a volume with far less tempered enthusiasm than does its own Preface!

Another feature of the volume's compilation which must impress the reader is its up-to-dateness. With the exhaustiveness of an encyclopedia, it is as fresh in its material as a newspaper. Events which took place hardly more than a month before publication are included with as much nonchalance as if making a book were an overnight affair. That every city planning commission and city planner will keep it constantly at his elbow, goes without saying; that it will promptly gain a place in every public, sociological, and municipal reference library, may be confidently predicted; that any layman who wants to know what the city planning movement in America is, what concretely has been done by individual cities and individual city planners, should turn to this book, is the reviewer's advice. In its piling up of fact from city upon city, the volume offers an inspiration which gives to it the best kind of propagandist value.

The book's compilation of data from the towns and cities is supplemented by an introductory discussion on How to Get Started in City Planning, and by a Summary. The latter includes among its subheads, The Leading Accomplishments of the Year, Acts and Ordinances, State, Interurban and Metropolitan Conferences, County Planning, Instruction in City Planning, City Planning Abroad, and The Effect of the War on City Planning. Then comes a brief but admirable List of References on City Planning, compiled by Theodora Kimball of the Harvard School of Landscape Architecture, and finally a very complete topical index.

The book is not copyrighted. Newspapers and commercial and civic bodies are invited to quote from it, to the end that through its means the ideals of city planning may be extended to the utmost.—CHARLES MULFORD ROBINSON.

The Enjoyment of Architecture.

By Talbot Faulkner Hamlin. Duffield & Co. 1916. New York. 348 pp., illus. $2 net.

In this volume the author has essayed a difficult task. He has written a book intended to be acceptable and interesting to the layman, and it is evident at once that he has succeeded in the attempt. It may be argued that no architect can put himself in the place of a man untrained in architecture so as to judge fairly of a work of this kind. The reviewer has, however, verified his own judgment by consulting a number of laymen. The work appears not only to have proven acceptable to these laymen, but Mr. Hamlin seems to have supplied something that has long been needed.

Such subjects as the architect's materials, the fundamentals of planning, the meaning of style, the social value of architecture and the laws of form in architecture are discussed with ability and the arguments reinforced with illustrations from well-known historical examples. The discussion and illustration of unity and balance in design is particularly successful. Chapters on "The Decorative Material of Architecture" and "The Criticism of Ornament" could perhaps have been considerably curtailed, since the book is lacking in any adequate consideration for that all-important subject "How far shall the architect abandon the restraints of historic tradition in order to meet the needs of a radically changing world?" Such minor criticism and a question as to the validity of certain judgments expressed by the author seem unfair, however, in view of this admirable attempt to make cultured people look at and think about the buildings that surround them. It may not be a book for the trained architect, but it is the sort of book which he should recom-

mend to an actual or prospective client whom he wishes to make familiar with at least the basic historical principles of his art.—R. D. K.

Domestic Architecture.

By L. Eugene Robinson. The Macmillan Co., 66 Fifth Avenue, New York. $1.50.

Mr. Robinson says his book "is intended for all who are interested in house problems" and hopes that "it may be of special service to those who are interested in the teaching of the house to students in colleges or in schools of economics." The writing of a textbook of value and interest to the lay reader as well as the professional is indeed a difficult task. The technical parts of this volume are too technical for the layman and too elementary for the professional, yet there is much that should prove interesting and valuable to both. One can hardly refrain from wondering, as one reads, whether the author has not attempted a Cook's tour through architectural design and building practice! There is much sound advice in many paragraphs, and those on color, decoration, and furnishing are especially good.

The sketch problems at the end of each chapter are quite inadequate for the student and entirely beyond the layman. The cost data is somewhat inaccurate and misleading, while the recommendations regarding construction are not always in accord with the best practice. The so-called "drafting-room manual" seems irrelevant and would have been far better omitted. The use of "lathe" for "lath" throughout the book, except in one or two instances, is a very unpleasant and annoying error. The glossary of architectural terms at the end of the book is concise and an exceedingly well-chosen list for the lay reader. The illustrations are numerous and very well drawn, and altogether there is much interesting matter in the book, though this is often obscured by material which is dry and out of place.—B. J. L.

News Notes

Central Committee on Preparedness

The Committee has continued its work of classifying and card-indexing the replies received from the circular letter sent out last month, as reported in the editorial columns. There follows a supplementary list of those architects who are now attached to the military service.

Mr. John Davis Hatch, San Francisco, Cal., Lieut., Coast Artillery, N. G. of Cal.
Mr. Harold M. Kingston, Rochester, N. Y., Troop H, 1st N. Y. Cavalry.
Mr. Sherley W. Morgan, Princeton, N. J., Co. L, 2nd N. J. Infantry.
Mr. Herbert A. Blogg, Seattle, Wash. Applied for O. R. C.
Mr. Harold W. Doty, Portland, Ore., N. G. of Ore.
Mr. Hermann Wischmeyer, Louisville Chapter, Class of Instruction, Engineer O. R. C.
Mr. Charles F. Norris, Gary, Ind., Sergt., Co. F., 1st Ind. Infantry.
Mr. Arthur B. Drake, Key West, Fla., Ensign, U. S. N. R.
Mr. A. E. Sprackling, Cleveland, Ohio, Past Commander, Cleveland Grays.
Mr. Charles Werner, Brooklyn, N. Y., O. R. C.
Mr. George E. Parsons, Boston, Mass., 1st Corps Cadets, N. G. of Mass.
Mr. Harrison H. Atwood, Jr., Boston, Mass., 1st Corps Reserve, N. G. of Mass.
Mr. Alex. G. Donaldson, Michigan Chapter, Chief Boatswain, Lake Patrol Service.

Industrial Safety Commission

President Mauran has appointed the following to serve as a Committee to represent the Institute in the Industrial Safety Commission: Messrs. Owen Brainard, Elmer C. Jensen, D. Everett Waid, with Robert D. Kohn as Chairman, and the President a member ex-officio.

Personals

Messrs. Charles H. Bebb and Carl F. Gould, Seattle, have removed to 1005 Securities Building, that city.

Mr. Harry Leslie Walker, New York City, announces his removal to 19 West Forty-fourth St.

Mr. Alfred Rosenheim, Los Angeles, has removed his offices to 1124 Van Nuys Building.

Mr. Charles Butler, of New York City, announces the removal of his office to 56 West Forty-fifth St.

Next Housing Conference

National Housing Association, Chicago, October 15 to 17, 1917. Headquarters, Hotel La Salle. For information inquire of Lawrence Veiller, Secretary, 105 East Twenty-second Street, New York City.

New York State Registration Law Amended

The four amendments described by Mr. Waid in his article in the April Journal (page 160) have now been duly enacted into law.

Corrections for the Annuary

The Executive Secretary announces the following:

Since the publication of the Annuary, A.I.A. Document, Series A, No. 122, the following corrections have been brought to the attention of the office of the Secretary at the Octagon:

Honorary Members:

The address of Violet Oakley should read "Cogslea," Allen's Lane Station, Philadelphia, Pa.

The reference to Viscount Bryce, should appear—Bryce, James, Viscount of Dechmont, Hindleap, Forest Row, Sussex County, England.

Honorary Corresponding Members:

Honorary Corresponding Member Richard Phene Spiers is dead, and his name should be transferred to Honorary Corresponding Members Deceased.

Alphabetical List of Fellows and Members:

The name of Alfred S. Joseph was omitted by mistake from the alphabetical list and from the roll of the Louisville Chapter. It should appear in each place.

Obituary

William Rotch Ware

1848–1917

William Rotch Ware, educated as an architect, first at the Massachusetts Institute of Technology in its early days and later at the Ecole des Beaux Arts, became, at the age of twenty-eight, the editor of the *American Architect*, and devoted thirty-one years of a very earnest and industrious life to that journal. During this period the art of architecture in America developed from an imitative admiration for many peculiar expressions of both French and English antecedents, crudely performed, to many admirable examples of studied, refined work thoroughly consistent with modern conditions and appreciative of the best of the past. Eccentricity, gradually yielding to sanity, with the standard of requirement constantly rising, was accompanied by corresponding improvement in the art itself. During this period Mr. Ware as editor of the *Architect* made it the exponent of the advancing interest in architecture. His editorials and comments were stimulating to the best efforts and enlightening as to the best purposes and results. Recognizing the fact that architecture is one of the three fine arts, he held it high and stated its ideals. By the public as well as by the profession, the *Architect* was welcomed for its frank and fearless advocacy of the best in study and design. He obtained critical articles at a time when ignorance of architecture was profound, and the journal occupied the position of being one of the few American weeklies which was frequently quoted abroad. Under his hands it became a forum for all subjects related to the profession. His brusque personality thinly veiled a sincere and kindly humor, associated with an intolerance for shams and a dislike for suavity. Though he at times regretted that he had not been active in the actual work of his profession, his influence as an editor was so unique that no such regret was justifiable.

In a formative and adolescent epoch in American Architecture he fostered high ideals, guided endeavor and called attention to achievements, and therefore encouraged all that was best in the art—a work which was widespread in its influence and well befitted the man who devoted his life to it so successfully. Few have more materially benefited the work of their profession than Mr. Ware did with his pen instead of with his pencil.

C. Howard Walker.

Samuel Huckel, Jr.

Elected to the Institute in 1881; to Fellowship in 1889. Died at Philadelphia, April 18, 1917.

Mr. Huckel was born in Frankford, Pa., in 1858, and began the study of architecture in the office of Mr. Benjamin D. Price. He later traveled extensively, and in 1883, entered into partnership with Mr. Edward Hazelhurst. The Manufacturers' Club at Philadelphia, the Executive Mansion at Harrisburg, the Odd Fellows Temple, and the Church of the Messiah, Philadelphia, were some of the works of this firm. Mr. Huckel received the commission for remodeling the old Grand Central Station at New York City, about 1900, at which time the partnership was dissolved. In 1902 the firm of Watson & Huckel was established, continuing until Mr. Huckel's death. By this firm there were designed, among many other buildings, the Union Station, Worcester, Mass.; the New Monmouth Hotel, Spring Lake, N. J.; the Monterey Hotel, Asbury Park, N. J.; St. Mark's Church, Frankford, Pa.; Christ Church, Norfolk, Va., and the Cumberland County Court House, Bridgeton, N. J.

Town-Planning and Housing

GEORGE B. FORD, Associate Editor

The Architect and City Planner*

Even a casual glance at the status of city planning as a science in this country at the present time reveals two fundamental obstacles to success which it is our bounden duty to effectively attack and overcome. The first, and probably the more familiar, is that insistent and ever-recurring gibe, which shows the confusion in the lay mind of the highly trained city planner with the dreamer of the old "city beautiful" type. We, as architects, have long shared the opprobrium conveyed by the term "dreamer," at least in the sense as employed in the periodical attacks on the profession in Congress and by those ever-sternly practical organizations which might, without injustice, be termed "designing contractors."

"Dreamer" in its true sense, and in the sense in which it properly applies, is very different, for no project with breadth of scope, with far-sighted vision, was ever conceived save in the mind of the dreamer who could translate his dream into terms of a practical reality. Nevertheless this misconception is one of the bars to progress which we must break down.

The other obstacle was very happily and wittily treated in the brilliant address made at the Fiftieth Convention of the American Institute of Architects, by President Vincent of the University of Minnesota, who outlined the growth and development of this vast unwieldy country

*Address made to the City Planning Conference in Kansas City, May 9, 1917, by John Lawrence Mauran, President of the American Institute of Architects.

of ours, in every section of which the spirit of the frontiersmen, who must of necessity know a little in every field of effort, still persists, and where the most self-sufficient and complacent of this distinctly American type of "know-it-all" is the logical candidate for high office. This type of man resents above all things the thought that expert opinion on any subject under the heavens can, by any chance, be superior to and therefore helpful to his own.

You would be amazed to know how often and under what curious conditions this resentment of expert advice has been shown to the American Institute of Architects, but personal experiences in many communities support the truth of such a statement and this second bar to progress must be broken down. I wish to emphasize some of the important services which the architectural profession can render in city planning, and, conversely, some of the fields in which the coöperation of city planners, with all the ramifications of their interests and contacts, can assist architects. I have referred to the bars to progress caused by the attitude of the lay mind, but the Institute, in the campaign it seriously inaugurated in Minneapolis last December, is striving to secure an intelligent and comprehensive handling of the Government's vast and continuing architectural program.

Any accomplishment of its purpose in that tremendously important field is bound to make its impress on every local community, as well as nationally, and one of the principal means of attaining that end is by the development of public opinion, because public opinion is the last word in determining the vote in Congress.

The vast army of laymen, the thinking, conscientious busy men of affairs who have become absorbed in the cause of city planning, constitutes the strongest force in the way of public opinion that could possibly be marshalled together. For the advancement, therefore, of the causes which we represent, and in which there is a singular unity of interest, let us work shoulder to shoulder in the disproving of worn-out theories, and in the building up of an understanding of that truth, however little it is at present understood, that utility, efficiency and beauty can and should be combined in the solution of any architectural or city-planning problem, provided the expert, to whom that truth is a creed, be trusted in the field which he has made his own.

How best can this be accomplished?

First of all, I would answer, by establishing between us that mutual respect and confidence which is the basis of all coöperation.

After all, the city planner *per se* and the architect belong to the same profession, and if one happens to have specialized in his planning in the laying out of cities and communities, while the architect has specialized in the planning of buildings, nevertheless, neither one is effective in his own calling without that breadth of fundamental training which prepares the designer of today to solve the complicated problems which occur in almost every commercial and monumental structure.

I have always held by the belief laid down by the late H. H. Richardson who, as you may know, spent eight years at the Ecole des Beaux Arts, and who said, in defending (as one had to in the early days) the Beaux Arts method of planning on broad lines, so familiar to us today, that an architect who could design a charming country house was not qualified by that fact alone to undertake the planning of a state capitol, but that the converse of that proposition is absolutely true—that the architect equipped and qualified to plan and design a state capitol could well be trusted as the designer of a country house.

I think you must see the force of the argument, for it is only through training on the broadest fundamental lines that a foundation can be laid for capable work in the specialized fields.

At the present moment, when we stand face to face with war conditions, without adequate preparation in so many of those fields where our expert knowledge might be of service, it must be an inspiration for city planners to feel that they have that special knowledge available for our Government, which they are ready and anxious to contribute as soon as the fields in which it can be employed are realized and recognized by those in command.

We stand here together at an hour when every impulse impels us toward the offer of active service, which all long to perform for our country, and in impressing upon you the gravity of the task that has been undertaken, and in urging upon you to make haste slowly, I do it in the full conviction that before us lies a field of service in which the finest patriotism may be displayed, the harvest of which will be of incalcuable value and benefit to our Country, to the Cause, and to Civilization!

Ninth National Conference on City Planning Held at Kansas City, May 7–9, 1917

Not since the National City-Planning Conference was organized in Washington, nine years ago, has there been an annual meeting more profitable to those attending than that held in Kansas City on May 7–9, last. Apart from the discussions in the proceedings of the Conference, to which reference will be made, the opportunity which the delegates enjoyed to study at first hand the notable contribution which Kansas City has made to the solution of planning problems lent peculiar interest to the program, which was specially designed to emphasize certain aspects of practical local problems that were likewise of interest and importance to other cities in America. The interurban passenger terminal problem, now a vital one in Kansas City, and one which is now being intensively studied, was discussed by George A. Damon, Dean of the Throop College of Technology, Pasadena, Cal. The correlated problem of the industrial terminal, to which Kansas City is devoting much attention, was discussed by A. Pearson Hoover, Consulting Engineer, of New York City. Closely related to these problems are those dealing with traffic-ways and street-widening, the former discussed by Curtis Hall, City Engineer, of Kansas City, and the latter by Nelson P. Lewis, Chief Engineer of the Board of Estimate and Apportionment of New York.

But Kansas City's most notable advance in city planning and civic improvement is exemplified in her remarkable park system, which in its completeness, its pervasiveness, in the way it reaches every quarter and section of the city, is unexcelled by that of any other city in the world. It was to this phase of the problem that three of the most illuminating and valuable addresses were devoted, namely, that by Frederick Law Olmsted, landscape architect, on the "Treatment of Water Courses, with Special Reference to the Needs of Kansas City;" that by William Buchholz, President of the Park Commission, on the "Way in which Kansas City Acquires Its Park System;" and that by the designer of the park system, George E. Kessler, who emphasized the relation of the existing system to the present and future city plan.

At one of the sessions held on the second day of the Conference, consideration was given particularly to the work of organizing and conducting city planning. George B. Dealey, publisher of the *Dallas News*, presided. His work in propagandizing city planning in Dallas and other cities of Texas is among the most remarkable accomplishments of recent years. Albert Schaaf, secretary of the Real Estate Association of Indiana, told of the remarkable state campaign for city planning which was conducted in Indiana during the latter part of 1916. Other addresses dealt with the inauguration of work in small cities, accounts of which were give by Henry L. Goemann, chairman of the City Planning Commission of Mansfield, Ohio, and George E. Kessler of St. Louis. At the second session on the same day the delegates listened to Thomas Adams, Town-Planning Adviser of the Commission of Conservation of Canada, on the subject of "The Development of the Plan." Mr. Adams' work in England as adviser to the Local Government Board, in whom is vested the authority for administering the Town Planning Act of 1909, and his subsequent service in creating a remarkable enthusiasm for city planning in Canada, enabled him to speak with peculiar authority and forcefulness of this important phase of the city-planning problem.

At the evening session of Tuesday, May 8, the most timely topic from the city-planning standpoint, and one which is probably being more widely considered in cities of America than any other, was discussed. This is the subject of districting, or zoning, to the exposition of which Edward M. Bassett and Lawson Purdy, both of whom have been intimately connected with the remarkable districting work that has been enacted into law in New York City, brought their unique and valuable experience.

The session on Wednesday, May 9, was devoted to a general discussion of city planning from the standpoint of the practical needs and experiences of cities in America.

The opportunity which those who attended the Conference had to visit and study the great works which Kansas City has completed or has under way was worth as much, if not more, than any other part of the remarkable program of the Conference. It is certain that all those who had a chance to observe the remarkable park system came away with a strengthened conviction that the issues with which city planning is concerned are among the most vital and important of any which the cities of America are called upon to solve.

The Legislature Passes Housing Code for Minneapolis

After five years of agitation and effort by the Civic and Commerce Association of Minneapolis, the Minnesota Chapter of the American Institute of Architects, the Real Estate Board, the Builders' Exchange, and labor organizations, the Legislature of Minnesota has at last passed the housing code for Minneapolis, which, combined with the new building code secured by that city last year, will give it first place among the American cities that have taken steps to protect homes against inadequate light and ventilation, unsanitary conditions, and fire hazard.

The movement for better housing in Minneapolis is of special interest as showing in the most convincing manner the strongly intrenched position which the modern commercial organization is taking in matters pertaining to civic improvement. The Civic and Commerce Association, through its Committee on Housing, led the movement for a comprehensive housing code from the beginning. For the actual work of investigation on the housing problem of Minneapolis, Otto W. Davis was engaged several years ago. Mr. Davis had accomplished the passage of a modern housing code in Columbus, Ohio, the first code in this country to apply to the one-and-two family houses regulations similar to those which had hitherto been applied only to tenement houses. Lawrence Veiller, Secretary of the National Housing Association, coöperated in preparing the proposed code. Progress in this work was described in the Journal for August, 1915, where reference was made to the publication of a comprehensive report on housing, of which 4,000 copies were circulated by the Association. Following the publication of this report, the newspapers took up the fight and were united in their demand for the passage of laws that would prevent any increase in housing ills. An attempt was made at the Legislature of 1914–15 to secure the passage of the code prepared by the Civic and Commerce Association, but it failed for political reasons. Since then, public opinion has had greater opportunity to observe the workings of unrestricted housing. The new code is the result.

Interesting features of the Minneapolis code are a provision limiting the height of dwellings, except hotels, to six stories and basement or seventy-five feet, and a provision requiring side yards proportionate to the height of buildings. The code is available for any other city in the state which desires to use it. Many men labored hard and unselfishly to secure this legislation, and their names will be recorded in the annals of better housing for Minnesota.

American City-Planning Institute

At the Ninth Annual City-Planning Conference, just described, it was unanimously voted to change the loosely organized Conference into a City-Planning Institute. A constitution was adopted and the following officers elected: President, Frederick Law Olmsted; Secretary, Flavel Shurtleff. The offices continue at 19 Congress St., Boston.

Structural Service Department

In connection with professional societies and organized bodies working toward the improvement of building materials and methods, and the following Committees of the Institute:

BASIC BUILDING CODE

WILLIAM B. ITTNER, *Chairman* . . . St. Louis
W. W. TYRIE . . . . . Minneapolis
G. F. A. BRUEGGEMAN . . . . . St. Louis
OWEN BRAINARD . . . . . New York
ROBERT STEAD . . . . . Washington
E. D. LITCHFIELD . . . . . New York

FIRE-PREVENTION

ROBERT D. KOHN, *Chairman* . . . . New York
W. L. PLACK . . . . . Philadelphia
G. C. NIMMONS . . . . . Chicago
JOHN R. ROCKART . . . . . New York
CHARLES H. BEBB . . . . . Seattle
LYMAN A. FORD . . . . . New York

CONTRACTS AND SPECIFICATIONS

FRANK MILES DAY, *Chairman* . . . . . Philadelphia
M. B. MEDARY, JR., *Vice-Chairman* . . . . . Philadelphia
ALLEN B. POND . . . . . Chicago
SULLIVAN W. JONES . . . . . New York
FREDERICK W. PERKINS . . . . . Chicago
JOS. EVANS SPERRY . . . . . Baltimore
J. A. F. CARDIFF . . . . . New York
GOLDWIN GOLDSMITH . . . . . Lawrence, Kan.
JULIUS FRANKE . . . . . New York

MATERIALS AND METHODS

THOMAS NOLAN, *Chairman* . . . . . Univ. of Pa.

(Each Chapter has a corresponding member who is chairman of the Chapter Subcommittee)

May, 1917, Serial No. 5

A part of the service of this Department will be to furnish inquirers with additional information, titles of books, names of authors or publishers, copies of articles, or in any way to afford help to architects wishing to ascertain the latest data available in connection with any material or method. For this service, address the Journal of the A.I.A., the Octagon, Washington, D. C. The service is free, except where clerical expense is involved, in which case a small fee will be charged to cover actual cost. The inquirer will be advised of the amount of the fee before any research work is undertaken.

The Journal of the American Institute of Architects
The Octagon
Washington, D. C.

Structural Service Department

D. Knickerbacker Boyd, *Associate Editor*

WOOD ISSUE

TIMBER, LUMBER, WOOD CONSTRUCTION AND FINISH

CONTENTS

As indicated by the title and explained in the March number, this issue will be devoted to all forms and uses of wood in building construction. At the same time it completes the exterior shell and covers it, of the composite building with which this Department is concerned and provides for much of the interior finish—fittings, furniture and movable features will be treated later.

The Index below, together with the explanatory notes under many of the separate headings, will sufficiently explain the sequence whereby wood is considered, first as standing timber and taken up by progressive stages from its management and utilization under Governmental direction through its manufacture, treatment, use and finish in building construction.

From now on several issues will deal with separate features of installation, such as, for instance, electricity, which will be referred to in June Serial No. 6.

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For Index of Materials previously treated see the General Index, page 261)

5A1 U. S. Department of Agriculture, Forest Service, and Forest Products Laboratory.

5A2 Committee D-7, on Timber, American Society for Testing Materials.

5A3 Committee of American Railway Engineering Association.

5A4 Committee on Uses of Wood in Building Construction. N. F. P. A.

5A5 Committee of Illinois Society of Architects.

5A6 Educational, Research Work and Other Agencies.

5B1 National Lumber Manufacturers' Association.

5B1a Other Lumber and Allied Associations.

5C State Wood-Using Industry Reports.

5D Standing Timber and Manufactured Lumber.

5D6 Branding or Trademarking.

5D7 Standardization and Conservation.

5E1 Treatments of Woods: Preservatives and Fire-Retardents.

5E2 Treated Wood Flooring and Paving.

5F Piling, Piers, and Bulkheads.

5G Wood in Buildings and in Structures in General.

5G4 Some Wood-Construction Accessories.

5H Exterior and Interior Wood-Finish, Veneering, and Finishing.

5J Wood Floors and Finishes and Parquetry Work.

5K Shingles, Lathing and Wall-Boards.

5L Recreation Facilities: Bowling-Alleys, Billiard Tables and Other Games.

5M Current Comments.

5A1 United States Department of Agriculture, Forest Service

Forester, Henry S. Graves, 928 F Street, Washington, D. C.
FOREST PRODUCTS LABORATORY, Madison, Wisconsin.

Publications:

(*a*) Department of Agriculture Yearbook.
(*b*) Annual Report of the Forester.
(*c*) Professional Papers. Published as Bulletins of the Department of Agriculture.
(*d*) Farmers' Bulletins.
(*e*) Contributions to the *Journal of Agricultural Research*. For sale only by the Superintendent of Documents, Government Printing Office, Washington, D. C. To be found, also, in the libraries of agricultural colleges, universities, technical schools, and other institutions.
(*f*) Yearbook Separates.
(*g*) Miscellaneous publications.

Of the above (*b*), (*c*), (*d*) and (*f*) are in stock, to a limited number, and single copies of those available will be distributed free upon request to the Division of Publications, Department of Agriculture, Washington, D. C. The Yearbook can be obtained free only through Congressmen. Copies are also sold by the Superintendent of Documents.

(*h*) Much of the information obtained through the researches of the Service is published in various trade and technical journals. Lists of such articles, a great many of which are included under 5D1*c*, may be obtained by application to the Forest Service, Washington, D. C., or to the Director, Forest Products Laboratory, Madison, Wis. Frequently reprints are available in limited quantities for free distribution.

(*j*) The Department of Agriculture issues a monthly list of publications which lists all new publications of the Department as they appear. This list is for free distribution upon application to the Division of Publications, Department of Agriculture, Washington, D. C. Lists of those publications of the Forest Service which are still in print, but are no longer for free distribution, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. (Price-list 43, which is kept up to date by periodical revision.) The various price-lists are the only documents distributed free of charge by the Superintendent of Documents.

(*k*) In addition to the above series, there were formerly published a series of Forest Service bulletins and a series of Forest Service circulars, many of which are still in print. Copies of a few of these are still available for free distribution, and copies of many others can be obtained only through the Superintendent of Documents.

(*l*) Many publications, containing information of value, now out of print, are not listed by the Superintendent of Documents and may be seen only in public or technical libraries. These are contained in a mimeographed list of all publications issued by the Forest Service which may be had upon application to the Forest Service.

The work of the Forest Service consists of the administration and protection of the National Forests, the development and utilization of their resources, and research into technical problems connected with forestry; also the discovery and dissemination of knowledge concerning the best uses of forest products. Forest products include wood pulp, turpentine and rosin, tannin, dyes, charcoal, acetate of lime, alcohol, and a considerable number of lesser chemical products. Lumber, however, is the most important of the forest products, and as a material of construction is the one of most concern to the architect.

An impression seems to be prevalent that the supply of timber is becoming depleted, but there is still enough of the virgin stand of several important species to last for several generations, and with the growing practice of forestry methods, a certain supply of lumber will always be available.

Wood has been, and still is, one of the chief materials used in construction. It has natural advantages because of the ease with which it can be worked and fastened, its light weight, its poor conduction of heat, and its pleasing appearance. These properties are due to its peculiar physical structure, which also makes it non-homogeneous and highly variable as compared with clay and metal products. In competition with these other materials, wood has suffered because of improper use which can only be corrected by a better knowledge of its properties. The Forest Service is contributing to this knowledge through its experimental investigations. Statistical studies covering the manufacturing of lumber, markets, and uses, are made by the Office of Industrial Investigations at Washington, D. C., and studies relating to the properties of wood, its protection against fire and decay, and its proper use in construction of all kinds are made at the Forest Products Laboratory, Madison, Wis.

Since the laboratory was opened in 1910, over 130,000 tests have been made on practically all commercial woods of the United States. These tests include bending, compression, shear tension, cleavage, and hardness, and establish the comparative strength values of the various species. They are also the basis on which has been established the relation between the physical and mechanical properties of wood, such as the relation of moisture, density, and rate of growth to strength. Special tests are made on methods of fastening and on finished products made of wood, such as barrels and boxes. A box-testing machine has been devised which approximates closely the conditions met in actual service and gives results easily interpreted.

It is the aim usually to employ the data from mechanical tests in the perfecting of grading rules and specifications. That has already been accomplished in a number of cases. For example, the grading rules for southern pine structural timber adopted by the American Society for Testing Materials, the American Railway Engineering Association, and the Southern Pine Association; assistance given the city of New York and other cities, the Wisconsin Industrial Commission and the National Board of Fire Underwriters in the preparation of building codes and specifications for timber; specifications for canned-goods boxes adopted by the National Canner's Association and the American Society for Testing Materials; specifications of the Interstate Commerce Commission for shipping containers.

The use of refractory woods and the increasing necessity for artificial seasoning have added new problems in the conditioning of wood. Improper drying methods will injure the strength of wood. It is also very necessary, for many purposes, that the wood should stay put and this depends to quite an extent on proper conditioning. Investigations at the laboratory have resulted in the design of a kiln in which it has been possible to overcome many of the difficulties met with in common practice. The kiln has been patented and dedicated to the public. Direct assistance has also been rendered in the design of commercial kilns wherever the Forest Service has been called upon to do so.

In order that wooden construction should be permanent, it should be protected from both fire and decay. Moisture is necessary for decay, but too little or too much moisture will prevent it. For instance, interior finish is protected under normal conditions, and wood kept immersed in water is not subject to decay, except that in the sea it is attacked by marine borers. There are also conditions under which wood will not be subject to destruction by fire, but the architect at some time meets the danger from both decay and fire and will recognize the importance of preventive measures.

Tests have been made on more than thirty wood preservatives, including creosotes and various salt solutions, to determine their ability to check the growth of fungus, their ability to penetrate wood, their effect on the strength of the wood, and their permanence. The preservative represents from 50 to 75 per cent of the cost of treatment. This is particularly true of the creosotes, necessitating their careful analysis and grading, and Forest Service investigations have aided materially in establishing standards in commercial practice.

There is a growing need for a perservative which, after injection into wood, can be painted over. Wood treated with creosote will not take paint, and wood treated with zinc chloride will not hold paint well, particularly when exposed to the weather. Sodium fluoride offers possibilities in this direction. It is very antiseptic, practically non-corrosive in contact with iron and steel, and strength tests show it has no apparent effect upon the mechanical properties of the wood. Several panels treated with sodium fluoride and zinc chloride, and then painted with white lead and zinc oxide paint, were exposed to the weather in different parts of the country, and after eighteen months there was no difference between those treated with the fluoride and the untreated paint, while the panels treated with zinc chloride had peeled.

The economy in the use of treated wood depends largely upon the comparative life of the natural and the treated material. As a basis for comparison, matched specimens are first tested on a small scale where conditions are readily controlled. Later, actual service tests are conducted in

coöperation with the large users of wood—railroads, telephone and telegraph companies, and municipalities.

Our congested districts and high buildings increase the natural fire-hazard and demand fire-resistant materials. Fireproof construction at present means a minimum use of wood, unless wood can be made fire-resistant. Investigations have been made along two lines in developing a fire-retardant—impregnation and surface painting. A fire-test house has been built in which it is possible to approximate office-building conditions, and a number of demonstrations have been made. The Forest Service has in this way been able to assist the National Fire Protection Association in developing specifications for wood in fire-resistant construction. A patent has been granted, and dedicated to the public, covering a method of treating wood and fibrous materials to make them fire-resistant.

It is the policy of the Forest Service to undertake any investigative work pertaining to the use of forest products, provided the problem is of general interest, and it seeks at all times to secure the coöperation of the various associations affected.

5A2 *Committee D-7 On Timber, American Society for Testing Materials, (1A2), (Formerly Committee 2)*

Chairman: Herman von Schrenk, St. Louis, Mo.

This Committee was organized in 1904 for the purpose of developing standards dealing with timber in its various forms, both as to treated and untreated timber, and for developing standard methods for inspection of timbers, both treated and untreated, and processes used in connection with the preservation of timber.

The early work of this Committee was devoted to the adoption of standard names for various kinds of wood and accurate definitions for various types of defects. These standard names and standard definitions for defects now form part of the Book of Standards of the Society. The Committee has also devoted considerable time to specifications for bridge and trestle timbers, and in 1910 adopted standard specifications for such timbers, which were revised in 1915.

The most important recent work of the Committee has consisted in formulating a new rule for southern yellow pine timbers (popularly known as the "Density Rule," and referred to under 5D3 and 5D4). The standard adopted in 1915 was the result of continuous work on the part of the Committee since 1904. Realizing the difficulty in the botanical classification of longleaf, shortleaf and loblolly pine, the Committee endeavored to formulate a definition which would make possible the proper identification of timbers of high strength value by the ordinary man. In coöperation with the United States Forest Service, this new definition was formulated. After its adoption it was accepted by the manufacturers of southern yellow pine as their standard, and has since been adopted by the American Railway Engineering Association, as well as numerous railroad companies and other users of structural yellow pine timber.

The Committee at the present time is engaged in formulating a similar standard for structural Douglas fir timber.

Committee D-7 has furthermore formulated standards for the distillation and fractionation of creosote oil, and in its report this year is presenting a tentative standard for wood-block paving.

In addition to the foregoing, various subcommittees are investigating such questions as making wood fire-resistive, the relation between the qualities of timbers and their ultimate use, standard methods for inspection of timbers, etc., the subcommittees bearing the following titles: I, On Classification and Designation of Southern Yellow Pines; II, On Uses of Untreated Yellow Pines; III, On Pacific Coast Timbers; IV, On Wooden Paving Blocks; V, On Methods of Preservative Treatment of Timber; VI, On Timber Preservatives; VII, On Inspection of Treated Timber; VIII, On Fireproofing of Timber.

5A3 *Committee on Grading of Lumber, American Railway Engineering Association (1A9)*

Chairman: Herman von Schrenk, St. Louis, Mo.

This Committee was organized in 1911. It has devoted most of its work to the adoption of standard names for timber, and particularly to the study and arrangement of the classification and grading rules of various classes of lumber. Up to the present time the A. R. E. A. has adopted standard grading rules for lumber as follows: Southern yellow pine, Douglas fir, construction oak timbers, cypress, and hemlock. Under each kind of lumber, definitions for defects are given. The rules were adopted after conferences with the grading rule committees of the various manufacturing associations in order to harmonize the manufacturers' rules as far as possible with those used by the consumer.

The principal work in which the Committee is engaged at the present time deals with the relation between lumber grades and the uses to which the various grades are to be put. The preliminary report on the general classification of uses was made at the annual convention in 1916, and the rules above referred to are published in the "Manual," as mentioned under 5D3*b*.

5A4 *Committee on Uses of Wood in Building Construction, National Fire Protection Association*

Chairman: Julius Franke, New York, N. Y.

This Committee has submitted reports to the last two conventions of the National Fire Protection Association.

The Report submitted to the 1915 Convention, printed in the published Proceedings and also separately as referred to under 5E1*b*, was an important contribution on "The Inflammability of Treated and Untreated Woods."

The Report to the 1916 Convention was a progress report on the work of this Committee concerning the subject of "Mill-constructed Buildings."

The Report to the 1917 Convention will contain a new Standard for Mill-construction to supercede the existing one, which, although excellent in ways, has gradually become out of date and it has become necessary to revise it. The new features will deal mostly with the question of the decay of wood and how to avoid it, and also with the strength of timber and how to calculate the same. After action by the Convention in Washington, May 8 to 10, 1917, the Report will appear in the Proceedings of the Twenty-first Annual Meeting.

5A5 *Committee on Lumber and Timber Specifications, Illinois Society of Architects*

Chairman: Robert S. Linstrom, Chicago, Ill.

No report being available, a portion of the account given in *The American Contractor*, January 29, 1916, of the formation of this Committee is quoted as of interest.

The specification of lumber is one of the important functions of the architect. It was the paramount topic for discussion and action at the regular monthly meeting of the Illinois Society of Architects held last Tuesday evening at the Art Institute, Chicago. The meeting was attended by the largest number of architects in the history of the organization, and the program was a most interesting and important one.

The principal speakers of the evening were W. J. Haynen, of Hattiesburg, Miss., chairman of the Grading Rules Committee of the Southern Pine Association; A. T. North, consulting engineer, Chicago; and Dr. von Schrenk, St Louis, consulting engineer of the Southern Pine Association. A large number of Chicago lumber dealers were present.

After an extended discussion, the Southern Yellow Pine Association and the Chicago Lumber Association volunteered to coöperate with the Illinois Society of Architects in formulating standard architectural specifications for all classes of timber and lumber. The committee to take up that work for the Illinois Society of Architects was appointed. (Mr. F. D. Chase, who was made chairman, has been succeeded by Mr. Linstrom.)

5A6 *Educational, Research Work and Other Agencies*

The U. S. Forest Service furnishes lists of colleges and schools with (*a*) ranger courses in forestry, (*b*) courses in forestry other than ranger, (*c*) courses leading to a degree in forestry; of these some provide facilities for investigation, research and testing, as mentioned under 1B3*a*, and others, as in the case of (*d*) the University of Illinois, maintain engineering experiment stations and issue bulletins and circulars (3C2*a*), and one (*e*), the University of Wisconsin at Madison, maintains close coöperative relations with the Forest Products Laboratory. At this University, in addition to the courses (*b*), a number of special lectures are given in various departments by members of the Forest Products Laboratory staff, and opportunities are also offered in these Laboratories for research work. One (*f*), the New York State College of Forestry, maintains a Wood Utilization Service, with Henry H. Tryon in charge. (See, also, 5C16.)

When the New York State College of Forestry was started at Syra-

cuse in 1911, one of the first problems that confronted the institution in its state-wide educational campaign was that of decreasing the amount of unnecessary waste which goes on in the lumber and woodworking industries. To accomplish this, what is now known as the Wood Utilization Service was instituted, and shortly thereafter the Department of Forest Utilization was formed and was given full charge of this Service.

Professor Tryon is desirous of bringing to the attention of all members of the Institute the Correspondence Course in "Lumber and Its Uses" which is a part of the Wood Utilization Service.

One-page bulletins are published intermittently. Each bulletin contains a number of items, usually ten. The information used in the building up of these bulletins has always been obtained through voluntary correspondence addressed to the college, and architects are invited to correspond with the Department in the interest of conservation and a better understanding of lumber and its uses.

5B1 *The National Lumber Manufacturers' Association*

Secretary: R. S. Kellogg, 11 South LaSalle Street, Chicago, Ill.

Publications:

Issues a series of bulletins upon structural timber, mill-construction buildings, and upon rural architecture; also technical letters especially adapted to the files of architects and engineers upon subjects such as building-code suggestions, creosoted wood-block paving, pier and wharf and other forms of construction. Through these publications and through its Engineering Bureau later referred to, the Association seeks to give the best and most helpful advice upon all species of wood in order to secure most appropriate use, the longest service, and the greatest satisfaction to all concerned.

These are published in series as follows, the various titles being referred to under the appropriate later sub-divisions in this department of the Journal. Any of these, with the exception of (*f*), will be furnished without charge to qualified inquirers.

(*a*) Rural Architecture. Valuable suggestive bulletins, the ten of which are described under 5G2*c*5.
(*b*) Engineering Bulletins. The two published to date are described under 5G1*a*1 and under 5G2*c*4.
(*c*) Better buildings. Two publications to date.
(*d*) Technical letters. Nine in all.
(*e*) Miscellaneous publications. Three to date.
(*f*) Arrangements have recently been made with the publisher, the Radford Architectural Company, Chicago, for a special handbook edition of the 400-page volume entitled "Lumber and Its Uses" which on behalf of the National Lumber Manufacturers' Association, will be supplied by the publisher at $2 per copy. (Revised Edition now on the press.) This volume deals in a broad way with the properties and commercial uses of all the principal American woods, and its contents will be found referred to under the appropriate sub-divisions in this issue of the Journal.

The National Lumber Manufacturers' Association is a federation of the principal associations of lumber manufacturers throughout the United States, whose purposes, as set forth in its charter are to

"Gather and disseminate information upon the production and shipments of lumber, market conditions, and the supply of forest products; to make technical and other investigations of the properties and uses of woods; to promote uniformity and efficiency in the methods of manufacturing and distributing lumber and allied products . . . and to promote the use of forest products by all lawful means."

The organizations affiliated with the National Lumber Manufacturers' Association, and the kinds of timber chiefly handled by them are indicated in the list given under 5B2.

Each of these associations has standard rules for the grading and inspection of the lumber manufactured by its members, which, together with much helpful literature about their products, may be had upon request. Two other organizations which work in harmony with the National Lumber Manufacturers' Association upon problems of national interest are the Gum Lumber Manufacturers' Association, Memphis, Tenn., and the American Oak Manufacturers' Association, Memphis, Tenn.

The National Lumber Manufacturers' Association maintains an engineering bureau, the services of which are freely available for advice and suggestions as to the use of wood for all structural purposes.

This has been established as a clearing house of authoritative information relative to the most advantageous use of woods for all of its numerously great adaptabilities. The purpose is to encourage the use of wood where wood is best to be used and to avert the misuse of wood through the public lack of knowledge of the special merits of the several distinct species.

It aims to coöperate with architects, engineers, builders, and others by furnishing upon the basis of the best engineering and architectural practice in wood construction all latest available data, and assisting them and the lumber-consuming public in receiving the greatest economic benefit from the proper application of wood, without desiring to urge that wood be used except where best for the purpose intended.

5B1A *Other Lumber and Allied Associations*

Among such there are (not including those interested in other than structural products) the following, those marked (*) being affiliated with the National Lumber Manufacturers' Association (5B1), immediately after the name of which follows the kinds of lumber chiefly handled by them:

1. *West Coast Lumbermen's Association, Seattle, Wash.
   Douglas Fir, Western Red Cedar, Spruce, Hemlock.
2. *Georgia-Florida Sawmill Association, Jacksonville, Fla.
   Yellow Pine.
3. *Hardwood Manufacturers' Association of the United States, Cincinnati, Ohio.
   Ash, Basswood, Beech, Buckeye, Butternut, Cherry, Chestnut, Cottonwood, Elm, Gum, Hickory, Maple, Oak, Walnut, Poplar, Sycamore, Tupelo.
4. *Michigan Hardwood Manufacturers' Association, Cadillac, Mich.
   Ash, Basswood, Beech, Birch, Elm, Maple, Hemlock.
5. *Northern Hemlock and Hardwood Manufacturers' Association, Oshkosh, Wis.
   Hemlock, Ash, Basswood, Birch, Elm, Maple, White Cedar, Tamarack.
6. *California Redwood Association, San Francisco, Cal.
   Redwood.
7. *Southern Cypress Manufacturers' Association, New Orleans, La.
   Cypress, Tupelo.
8. *California White and Sugar Pine Association, San Francisco, Cal.
   Sugar Pine, California White Pine.
9. *North Carolina Pine Manufacturers' Association, Norfolk, Va.
   North Carolina Pine.
10. *Northern Pine Manufacturers' Association, Minneapolis, Minn.
    White Pine, Norway Pine, Spruce, Tamarack.
11. *Southern Pine Association, New Orleans, La.
    Southern Pine.
12. *Western Pine Manufacturers' Association, Spokane, Wash.
    Western Pine, Idaho White Pine, Fir, Larch.
13. Arkansas Soft Pine Bureau, Little Rock, Ark.
14. White Pine Bureau, St. Paul, Minn.
15. Gum Lumber Manufacturers' Association, Memphis, Tenn.
16. National Hardwood Lumber Association, Chicago, Ill.
17. American Oak Manufacturers' Association, Memphis, Tenn.
18. Carolina Air-Dried Pine Association, Raleigh, N. C.
19. East Oregon Lumber Producers' Association, LaGrande, Ore.
20. Eastern Lumberman's Association, Sheridan, Me.
21. Eucalyptus Hardwood Association, Los Angeles, Cal.
22. Hardwood Dimension Manufacturers' Association, Arlington, Ky.
23. Hemlock Manufacturers' Promotion Bureau, Oshkosh, Wis.
24. Humboldt Lumber Manufacturers' Association, Eureka, Cal.
25. Indiana Hardwood Lumbermen's Association, Indianapolis, Ind.
26. Lumber Manufacturers' Association of Southern New England, Ansonia, Conn.
27. Mississippi Pine Association, Hattiesburgh, Miss.
28. Mountain Lumber Manufacturers' Association, Nelson, B. C.
29. Northern White Cedar Association, Oshkosh, Wis.
30. Tennessee Manufacturers' Association, Nashville, Tenn.
31. West Alabama Pine Association, Tuscaloosa, Ala.

5B1B *Other Associations Specifically Concerned with Wood Problems and Products*

Among such are the following, exclusive again of those with interests outside of building construction, and not including also those interested in furniture manufacture:

1. American Wood-Preservers' Association, Baltimore, Md.
2. Association of Creosoting Companies of the Pacific Coast, Seattle, Wash.
3. Creosoted Wood Block Paving Bureau, Chicago, Ill.
4. Northern White Cedar Shingle Manufacturers' Association, Oshkosh, Wis.
5. Redwood Shingle Association, Eureka, Cal.
6. Shingle Branch, West Coast Lumbermans' Association, Seattle, Wash.
7. Maple Flooring, Manufacturers' Association, Chicago, Ill.
8. Oak Flooring Manufacturers' Association, Cincinnati, Ohio.
9. Eastern Sash, Door, and Blind Manufacturers' Association, Holmesburgh, Philadelphia, Pa.
10. Millwork Cost Information Bureau, Chicago, Ill.
11. Southern Sash, Door, and Millwork Manufacturers' Association. Atlanta, Ga.
12. Curtis Service Bureau, Clinton, Iowa.
13. Building Industries Association, St. Louis, Mo.

14. National Veneer and Panel Manufacturers' Association, Indianapolis, Ind.
15. Commercial Rotary Gum Association, Memphis, Tenn.

In addition to which, representing artisans and others engaged in some of the wood industries, there exists:

16. Brotherhood of Carpenters and Joiners, Indianapolis, Ind.
17. Wood Carvers' and Modellers' Association, Philadelphia, Pa.
18. International Wood Carvers' Association of North America,

5C State Wood-Using Industry Reports

Prepared by the United States Department of Agriculture, Forest Service, Office of Industrial Investigations.

The Forest Service has completed studies of wood-using industries in a number of states. The reports, primarily of local interest, containing information which should be of much value to architects and builders, have been printed by some department of the Government of the state interested, or by a periodical devoted to the interest of lumbering and conservation. Bulletins at present available are indicated below and may be secured from the coöperator whose address is given. In ordering those for which there is no charge, postage should accompany the application. (See also 5A6.)

State	Coöperator	Address	Price
1. Ala.	Lumber Trade Journal	New Orleans, La.	$0 25
2. Ark.	Supt. of Doc., Gov. Print. Ofc.	Washington, D. C.	05
3. Ark.	Separate Directory of Wood-Using Plants, Lumber Trade Journal	New Orleans, La.	....
4. Cal.	G. M. Homans, State Forester	Sacramento	....
5. Conn.	W. O. Filley, State Forester	New Haven	....
6. Fla.	W. A. McRae, Comr. of Agr.	Tallahassee	....
7. Ga.	Lumber Trade Journal	New Orleans, La.	....
8. Ill.	J. C. Blair, Univ. of Ill.	Urbana	....
9. Ind.	Forest Service	Washington, D. C.	....
10. Me.	State Forest Commissioner	Augusta	....
11. Mich.	Public Domain Commission	Lansing	....
12. Miss.	Lumber Trade Journal	New Orleans, La.	$0 25
13. Mo.	St. Louis Lumberman	St. Louis	10
14. N. H.	E. A. Hirst, State Forester	Concord	25
15. N. J.	Alfred Gaskill, State Forester	Trenton	....
16. N. Y.	State College of Forestry	Syracuse	....
17. N. C.	J. S. Holmes, State Forester	Chapel Hill	....
18. Ohio	Edmund Secrest, State Forester	Wooster	....
19. Pa.	R. S. Conklin, Commissioner of Forestery	Harrisburg	....
20. S. C.	E. J. Watson, Commissioner of Agriculture	Columbia	....
21. Tenn.	Southern Lumberman	Nashville	....
22. Tex.	Lumber Trade Journal	New Orleans, La.	25
23. Vt.	A. F. Hawes, State Forester	Burlington	....
24. Va.	G. W. Koiner, Commissioner of Agriculture	Richmond	....
25. W. Va.	H. E. Williams, Comr. of Agr.	Charleston	....
26. Wis.	F. B. Moody, State Forester	Madison	....

The supplies of the wood-using reports in the following states are entirely exhausted: 27. Idaho, 28. Iowa, 29. Kentucky, 30. Louisiana, 31. Maryland, 32. Massachusetts, 33. Minnesota, 34. Montana, 35. Oregon, and 36. Washington.

5D Standing Timber and Manufacturered Lumber: Localities, Kinds, and Classifications

Closely allied to this subdivision is that on Wood in Buildings and in Structures in General, where the publications pertaining to specific uses in buildings are separated as well as possible from those here described, which deal more with the product, its source, and general uses.

5D1 *Publications and Articles. Listed by the U. S. Department of Agriculture, Forest Service, Washington, D. C., and Forest Products Laboratory, Madison, Wis.*

(*a*) The U. S. Department of Agriculture, Forest Service, 5A1, issues a large number of publications pertaining to the silvicultural end of the work—that is the planting, growing and management of trees in forests—and other publications relating to the supply and uses of woods in specified areas. Consult list of publications to be had, as mentioned under 5A1*h*.

(*b*) Other Governmental publications pertaining to this subdivision and of interest structurally which follow, under this (*b*) classification, can be obtained only from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the price stated, until the supply is exhausted. Remittances should be made by money order or in coin (at sender's risk). Stamps can not be accepted. Those indicated by * are exhausted. For those not now obtainable through the Superintendent of Documents, see 5A1*j*.

1. Wood-using industries and national forests of Arkansas: Part 1, Uses and supply of wood in Arkansas; Part 2, Timber resources of national forests in Arkansas. 1912. 40 pp. (Forest Bulletin No. 106.) 5 cents.
2. Uses for chestnut timber killed by bark disease. 1914. 24 pp., illus. (Farmers' Bulletin No. 582.) 5 cents.
3. Properties and uses of Douglas fir: Part 1, Mechanical properties; Part 2, Commercial uses. 1911. 75 pp., illus., map. (Forest Bulletin No. 88.) 15 cents.
4. Southern Cypress. 1915. 74 pp., illus. (Agriculture Bulletin No. 272) 20 cents. Embraces geographical and commercial range, present supply and annual cut, properties and use of wood, markets and prices, life history of the tree, etc.
5. Red gum, with discussion of mechanical properties of red gum wood. Revised 1906. 56 pp., illus. (Forest Bulletin No. 58.) 15 cts. Sweet gum or star-leafed gum of the southern states.
6. Eastern hemlock, *Tsuga canadensis*, Linn., Carr. 1915. 43 pp., illus. (Agriculture Bulletin No. 152.) 10 cents. Describes characteristics, gives tables of its volume and rate of growth, and chief facts regarding its utilization for lumber, pulp, tanning, etc.
7. Mechanical properties of western hemlock. 1913. 45 pp., illus. (Forest Bulletin No. 115.) 15 cents. Also known as hemlock spruce, western hemlock fir, Prince Albert fir, gray fir, and Alaska pine.
8. Larch: Mechanical properties of western larch. 1913. 45 pp., illus. (Forest Bulletin No. 122.) 10 cents.
9. Lumber saved by using odd lengths. 1910. 5 pp. (Forest Circular No. 180.) 5 cents.
10. Our timber supply (general information). 1914. 8 pp. 5 cents.
11. Seasoning of timber. 1903. 48 pp., illus. (Forest Bulletin No. 41.) 25 cents.
12. Strength values for structural timbers. 1912. 8 pp. (Forest Circular No. 189.) 5 cents.
13. Tests of structural timbers. 1912. 123 pp., illus., maps. (Forest Bulletin No. 108). 20 cents. Tests of Southern yellow pines, Douglas fir, western hemlock, western larch, redwood, Norway pine, tamarack, red spruce, and white spruce.
14. Principles of drying lumber at atmospheric pressure, and humidity diagram. 1912. 19 pp., illus. (Forest Bulletin No. 104.) 5 cents.
15. Timber, elementary discussion of characteristics and properties of wood; with key to more important woods of North America. 1895. 88 pp., illus. (Forest Bulletin, No. 10.) 10 cents.
16. Forest trees of Pacific Slope. 1908. 441 pp., 207 illus. 60 cents. The illustrations show the foliage and fruit of the 150 species described.
17. Mahogany: Colombian mahogany, *Cariniana pyriformis*, its characteristics and its use as substitute for true mahogany, *Swietenia Mahogani;* with description of botanical characters of *Cariniana pyriformis*. 1911. 16 pp., illus. (Forest Circular No. 185.) 5 cents.
18. Hardwoods of Americas—Mahogany. (American Republics Bulletin, August, 1909, pp. 386 to 402, illus.) 25 cents.
19. Identification of important North American oak woods based on study of anatomy of secondary wood. 1911. 56 pp., 48 illus. (Forest Bulletin No. 102). 10 cents. The illustrations furnish a means of identifying commercial woods.

20. Shortleaf pine, its economic importance and forest management. 1915. 67 pp., illus. (Agriculture Bulletin No. 308.) Paper, 15 cents.
21. Sugar Pine. 1916. 40 pp., illus., map. (Agriculture Bulletin No. 426.) 15 cents.
22. Physical properties of yellow pine. (Forest Circular No. 12.)
*23. Rules and Specifications for the Grading of Lumber, Adopted by the various Lumber Manufacturers of the United States, compiled by E. R. Hodson. 1906. 127 pp. (Forest Bulletin No. 71.) 15 cents.
24. Economic aspects of the lumber industry. (Agriculture Report No. 114), extracts printed in *The American Contractor*, April 14, 1917.
25. White pine under forest management. 1914. 70 pages, illus. (Agriculture Bulletin No. 13). 15 cents. "Of all the trees of eastern North America white pine best combines the qualities of utility, rapid growth, heavy yield, and ease of management."
26. Windbreaks, their influence and value. 1911. 100 pp., illus. (Forest Bulletin No. 86.) 30 cents. Deals with the best species of trees for planting as an obstacle to the surface winds and for the protection of orchards and field crops in various regions of the United States.
27. Adhesion of nails, spikes, and screws in various woods. (In Tests of Metals, Watertown Arsenal 1B1*b*, 1884, pp. 448 to 471, illus.) Cloth, 60 cents. White pine, chestnut, yellow pine, white oak, and laurel were tested.
28. Effect of moisture upon strength and stiffness of wood. 1906. 144 pp., illus. (Forest Bulletin No. 70.) 15 cents.
29. Uses of commercial woods of United States: Beech, birches, and maples. 1913. 56 pp. (Agriculture Bulletin No. 12.) 10 cents.
30. Uses of commercial woods of United States: (1) Cedars, cypresses, and sequoias, 1911. 62 pp. (Forest Bulletin No. 95.) 10 cents; (2) Pines. 1911. 96 pp. (Forest Bulletin No. 99.) 15 cents.
31. Uses of wood. Pp. 391 to 420, illus. (In Agriculture Yearbook, 1896.) Price of entire vol., cloth, 50 cents.
32. Mechanical properties of woods grown in United States, preliminary summary of tests on small, clear, green specimens of forty-nine species of wood. 1913. 4 pp., 1 table. (Forest Circular No. 213.) 5 cents.
33. The Strength of Wood as Influenced by Moisture, Harry Donald Tiemann. August 26, 1907. (Forest Circular No. 108.)
*34. Redwood, Mechanical properties of. Nov. 1, 1912. (Forest Circular No. 193.)
*35. Density of wood substance and porosity of wood. Sept. 21, 1914. (Published in *Journal of Agricultural Research*.) 25 cents.
*36. Southern pines, Properties and uses of. 1909. (Forest Circular No. 164.) 5 cents.
*37. Redwood, Mechanical properties of. 1912. (Forest Circular No. 193.) 5 cents.

(*c*) Those which follow, under the (*c*) classification, are papers prepared by Forest Products Laboratory and published in proceedings of societies and technical, trade and other journals. The star before the name of an article indicates that no reprints are available for distribution. Such articles must be consulted in the original publication. Of the others a limited supply of reprints are available for general distribution, and copies will be sent free, until the supply is exhausted, upon application to Director, Forest Products Laboratory, Madison, Wis.

1. A Few Deductions from Strength Tests of American Woods, J. A. Newlin. *American Lumberman*, Jan. 16, 1915.
2. Factors Affecting Structural Timbers, H. S. Betts. *Engineering Record*, Aug. 29, 1914.
3. Grading Rules of Yellow Pine Structural Timber Discussed, H. S. Betts. *American Lumberman*, Apr. 24, 1915.
4. Applicability of Yellow Pine Grading Rules to Other Timbers, J. A. Newlin. *Engineering Record*, Oct. 3, 1914.
5. Air Seasoning of Timber, W. H. Kempfer. American Railway Engineering Bulletin No. 161; also *Railway Review*, Jan. 10, 1914.
6. Effect of Different Methods of Drying on Strength of Wood, H. D. Tiemann. *Lumber World Review*, April 10, 1915.
*7. Fourth Progress Report on Tests of Treated Ties. American Railway Engineering and Maintenance of Way Association Bulletin No. 124.
8. The Protection of Ties from Mechanical Destruction, H. F. Weiss, Proceedings American Wood Preservers' Association, 1914.
9. Structural Timber in the United States, H. S. Betts and W. B. Greeley. International Engineering Congress, San Francisco, Sept. 20–25, 1915.
*10. Discussion of Proposed Forest Service Rules for Grading Strength of Southern Pine Structural Timber, H. S. Betts. American Society for Testing Materials, 1915.
*11. Effect of Moisture and Other Extrinsic Factors on the Strength of Wood, H. D. Tiemann. Society American Foresters, Proceedings, 1907.
*12. The Effect of Speed of Testing upon the Strength of Wood and the Standardization of Tests for Speed, H. D. Tiemann. American Society for Testing Materials, Proceedings, 1908, Vol. VIII.
13. Eucalyptus Lumber: Part 1, To What Extent is California-grown Eucalyptus Suitable for Lumber? Part 2, Results of Experiments in Drying Blue Gum and other Species, H. D. Tiemann. *Hardwood Record*, Sept. 25, 1913.
*14. Kiln-Drying Lumber and a Discussion of the Whole Problem—A New Kiln, H. D. Tiemann. *Lumber World Review*, March 10, 1914.
15. Principles of Kiln-Drying Lumber, H. D. Tiemann. *Lumber World Review*, Jan. 25, Feb. 10, 1915.
16. Improvements in Forest Service Humidity Regulated Dry Kiln, H. D. Tiemann. *American Lumberman*, Sept. 1, Sept. 5, 1915; also *Hardwood Record*, Sept. 25, 1915.

(*d*) The Government statistics of the lumber industry were formerly covered in publications, entitled "Forest Products," issued by the Department of Commerce, Bureau of the Census, compiled in coöperation with the Department of Agriculture, Forest Service.

Annual statistics of the production of lumber, lath, shingles, and other forest products are now being obtained by the Forest Service and are being published as U. S. Department of Agriculture Bulletins, forming a part of this regular series. The latest lumber, lath, and shingle statistics will be found in U. S. Department of Agriculture Bulletin 506, entitled "The Production of Lumber, Lath, and Shingles in 1915 and Lumber in 1914." Copies of this may be obtained from the Division of Publications.

5D2 *Government Specifications*

(*a*) *Specifications issued by the Navy Department for naval stores and materials.*

The Navy Department issues specifications, as mentioned under 3A1*a*, those pertaining to wood being under Serial Designation No. 39, and covering among others the following kinds: Beech, Birch and Maple; Butternut; White Cedar; Douglas Fir; Puget Sound or Oregon Pine; Oak; White Oak Timber; White Pine; New England Country White Pine; Western White Pine (Idaho); Tonawanda White Pine, inspection rules for; Yellow Pine for decking, lumber, timber, and sticks for masts and spars; Spruce and Teak.

(*b*) *Specifications of the War Department and Treasury Department (supervising architect's office).*

The portions of such specifications with respect to lumber and woodworking are not separately issued as in the case of specifications for certain other branches of the work, as referred to under 3A1*a*, nor are they available for general distribution to others than those interested in the work for which prepared.

5D3 *Specifications, Standards, Manuals and Publications of Technical, Professional and Other Organizations*

(*a*) American Society for Testing Materials:
1. "Standard Definitions of Terms Relating to Structural Timber" (Serial Designation D 9–15), Book of Standards, 1916 (1A4*c*). Pp. 598–601.
(See Mr. von Schrenk's description under 5A2.)

(*b*) American Railway Engineering Association:
"Grading of Lumber." Adopted report of committee, completely illustrated with photographic reproductions of knots, streaks, holes and conditions, sound and otherwise. "Manual," 1915, (1A9*f*), pp. 591–653, containing:
1. Classification and Grading Rules for Douglas Fir.
2. Classification, Grading Rules and Dressing Rules for Southern Yellow Pine.
3. Specifications for Construction Oak Timbers.
4. Classification and Grading Rules for Cypress Lumber and Shingles.
(See Mr. von Schrenk's description under 5A3.)

(*c*) National Board of Fire Underwriters:
1. "Grading Rules for Timber," Building Code, 1915, pp. 278–283. These are printed as an appendix to the Code and comprise "a proposed revised form of Rules of the U. S. Forest Service for Grading Structural Timbers of Southern Yellow Pine;" also, tables for computing the strength of rectangular wooden beams and tables of allowable floor-loads for different kinds of woods.

(*d*) Inspection Department, Associated Factory Mutual Fire Insurance Companies:
1. "Longleaf Pine Factory Timber" (3A7*b*36.)
2. "Dry Rot in Factory Timbers," 1915 (3A7*a*45). 107 pp.; illus. Contains specifications suggested for a special grade of longleaf pine for use in Mutual factories. Also a full discussion of varying conditions and precautions to be taken. Illustrates and describes timber available and discusses interstate rules for grading lumber and specifications of societies and associations and observations of the U. S. Forest Products Laboratory. (See, also, Chapter mentioned under 5E.)

(*e*) Journal of Society of Constructors of Federal Buildings:
1. "What Is a Plank?" Chas. E. Morrell, Jr. November, 1914. P. 385.
2. "Inspection of Yellow Pine;" Hermann von Schrenk. March, 1916. Paper No. 205, p. 152.

5D4 *Grading and Inspection Rules, and Other Publications of Lumber and Manufacturers' Associations*

Other publications of other associations, bureaus and branches will be found mentioned under the various subdivisions to which they chiefly pertain.

(*a*) National Lumber Manufacturers' Association:
1. "Timber for Structural Purposes," E. A. Sterling. Engineering Bulletin No. 1, January, 1916, 20 pp.

(*b*) National Hardwood Lumber Association:
1. See "Rules for the Measurement and Inspection of Hardwood Lumber." The purposes of these are to provide for the uniform inspection and measurement of the woods described therein.

(*c*) Hardwood Manufacturers' Association of the U. S.:
1. "Association Standard Grades of Poplar, Oak, Cottonwood, Gum and other Hardwoods." Effective October 1, 1915. 118 pp. Contains Classification, Official Grading, Inspection Rules and Sales Code.

(*d*) Northern Hemlock and Hardwood Manufacturers' Association:
1. "Rules for the Inspection of Hemlock Lumber," revised at Annual Meeting on January 29, 1913. 27 pp. Includes Standard Sizes adopted October 29, 1913.

(*e*) Northern Pine Manufacturers' Association:
1. "Rules for the Grading of Northern Pine, Spruce and Tamarack Lumber." Reported by the Bureau of Grades. Edition of February 1, 1915 (ninth issue). 72 pp.

(*f*) The Oregon Lumber Manufacturers' Association (Since merged with the West Coast Lumber Manufacturers' Association):
1. "Merits of Pacific Coast Woods," E. D. Kingsley. Being an address delivered before the Nebraska Lumber Dealers' Association at Omaha, on Feb. 6, 00. 16 pp.

(*g*) Southern Pine Association:
1. "Southern Yellow Pine Timbers, Including Definition of the 'Density Rule'." Authorized reprint from the copyrighted Standards of the American Society for Testing Materials, approved and adopted by the Southern Pine Association, January 1, 1917. 22 pp.
   (*a*) "Discussion of the Proposed Forest Service Rules for Grading the Strength of Southern Pine Structural Timbers," H. S. Betts. Appendix I, pp. 15–30. Contains diagrams and illustrations.
   (*b*) "Southern Yellow Pine Timber and Density Grading Rules," O. T. Swan. Appendix II, pp. 31–47. Contains diagram and tables.
2. "Standard Specifications for Grades of Southern Yellow Pine Lumber." April 1, 1917. 58 pp. (Supersedes all previous issues.) "Being the specifications for southern yellow pine lumber generally recognized by the lumber trade for years. Mills of manufacturers subscribing to this Association are located in the states of Texas, Arkansas, Missouri, Louisiana, Mississippi, Alabama, Georgia, and Florida."
   This contains specifications for all forms of a manufactured lumber, including dimension timbers, siding, fencing, ceiling, flooring, roofing and Byrkit lath, with full-sized detailed and figured drawings of all but the former.
3. "The Gulf Coast Classification of Pitch Pine Resawn Lumber and Sawn Timber." Revised May, 1910, by the Gulf Coast Lumber Exporters' Association. Adopted by the Southern Pine Association 1915. 28 pp.
4. "Service in the Department of Inspection and Grades." 1917. Describes in detail the functions of this Department, which include: Grading Rules, Grading Methods, Specifications and Standardization, Inspection at Point of Origin, Inspection at Point of Destination.

(*h*) West Coast Lumbermen's Association:
1. "The Lumber Users' Guide" (No. 8), a general description of Douglas fir.
2. "The Lumber Users' Guide "(No. 12), a general description of western red cedar. 22 pp., illus.
3. "Not the Non-Use but the Proper Use of Wood," a description of fire-test made by the Building Department of the city of Seattle in coöperation with the Port Commission, the City Fire Department and the West Coast Lumber Manufacturers' Association. 18 pp., illus.
4. "Comparative Strength Values for Structural Timbers." Leaflet giving tables.

(*j*) California Redwood Association:
1. "California Redwood Lives Forever." Leaflet. 8 pp., illus.
2. "Two Births 2,000 Years Ago—The Marvel God Wrought with the Redwoods of California." Booklet. 12 pp., illus.

(*k*) The North Carolina Pine Association, Inc.:
1. "Official Inspection Rules," January 25, 1917, 24 pp., covering kiln-dried North Carolina Pine (revised 1917), Longleaf Pine (1905 Rules), Air-Dried North Carolina Pine (1913 Rules), Shortleaf Pine Dimensions (1910 Rules). It is stated that "at the present time fully 95 per cent of the output of pine lumber in the states of Maryland, Virginia, North and South Carolina is graded and classified according to these grading rules, and all quotations are made on them as a basis." In addition to rough and dressed lumber, describes, with full-sized drawings, all kinds of worked material including ceiling, partition, siding, shiplap and other forms.

(*l*) Southern Cypress Manufacturers' Association:
1. Issues a "Cypress Pocket Library" consisting of 41 Volumes, each of which describes different features and uses of this wood, some, as in No. 1, entitled "What It Is," describing generally the wood and uses (from Forest Service Bulletin No. 95, June 30, 1911), in which Volume is also an Index to all others.

(*m*) American Oak Manufacturers' Association has in preparation a booklet on the growth and uses of oak which will shortly be ready for distribution.

5D5 *Pocket-books, Textbooks and Publications by Educational Institutions and Publishers*

(*a*) Engineering Experiment Station, University of Illinois (3C2*a*2):
1. "Tests of Timber Beams," Arthur M. Talbot. 1910. Bulletin No. 41. Free.

(*b*) *American Forestry* publishes each month a list of titles, authors, and prices of books on forestry and related subjects. These may be ordered through the American Forestry Association, Washington, D. C.

(*c*) "Lumber and Its Uses" (5B1*f*). Contains, among others, sections on: The Structure of Wood, Mechanical Properties of Wood, Lumber Grades, Standard Sizes of Lumber, Shipping Weights, Lumber Measurements, Lumber Manufacturing, Structural Timbers, Seasoning of Timber, Lumber Prices, The Uses of Lumber, Commercial Woods, Forest Products, Timber Supply, Permanent Advantages of Wood, and Sources of Information about Timbers.

(*d*) "Building Construction and Superintendence," F. E. Kidder. 1915. Part II, "Carpenters' Work," contains, among others, sections on: The Tree, Physical Properties and Characteristics of Timber, Seasoning and Drying of Timber, Defects in Timber, Conversion of Timber, Strength of Timber as Affected by Its Physical Condition, Selection of Timber for Special Purposes, Decay and Preservation of Timber, Varieties of Timber Used in the United States—Their Characteristics and Uses, Data Relating to the Strength of Materials, and List of Tables.

(*e*) "Mechanical Engineers' Handbook," Lionel S. Marks. 1916.
1. "General Properties of Wood," H. von Schrenk. Pp. 577–585.
2. "Strength of Wood," W. K. Hatt.

(*f*) The Building Trades' Handbook:
1. "Weights of Dry Woods," p. 68.
2. "Description of Woods and Relative Hardness of American Woods," pp. 229–233.
3. "Shrinkage of Woods," p. 234.
4. "Qualities of Timber," pp. 234–236.
5. "Quarter and Bastard Sawing," pp. 236–238.

(*g*) See "Identification of the Economic Woods of the U. S.," Samuel J. Record.

(*h*) "The Manufacture and Uses of Cypress." An illustrated address by Dr. Hermann von Schrenk before a meeting of Michigan lumbermen. Reprinted from the *Lumber Trade Journal*, New Orleans.

(*j*) "Southern Cypress," Samuel J. Records. *American Architect*, October 18, 1916. Descriptive article, illus.

(*k*) "The Strength of Long-Seasoned Douglas Fir and Redwood," Arthur C. Alvarez. May 17, 1913. Bulletin of the Department of Civil Engineering, University of California.

(*l*) "One Thousand Uses for Oak," to be had from Oak Information Bureau of *Hardwood Record*, Chicago; gives names of all oaks, production, and uses.

(*m*) "American Forest Trees," *Hardwood Record*. Practical information on commercial trees.
(*n*) See "Principal Species of Wood—Their Characteristic Properties," Charles Henry Snow. 1908.
(*o*) See "Timber and Timber Trees," Thos. Haslett and H. M. Ward. 1894.

5D6 *Branding or Trade-marking of Timbers and Lumber*

This is a subject which is being given much attention by several associations, societies, and manufacturers, some of which have adopted the practice, and is of interest and importance to architects, builders, and general consumers, many of whom have also given consideration to the subject. In addition to being treated within some of the publications mentioned elsewhere, the subject is dealt with in—

(*a*) Proceedings of the National Lumber Manufacturers' Association (5B1) for 1915:
1. "Trade-marked Lumber, from the Standpoint of the Manufacturer," J. A. Gabel. Pp. 125–133.
2. "Trade-marked Lumber, from the Standpoint of the Association," A. W. Cooper. Pp. 134–141.
3. "Trade-marked Lumber, from the Standpoint of the Advertising Man," Everett Sisson. Pp. 142–149

(*b*) Proceedings of the National Lumber Manufacturers' Association for 1916:
1. "Why Architects and Engineers Want Branded Timber," Frank D. Chase. Pp. 186–192.
2. "Why the Retail Lumbermen Want Identified Merchandise," F. A. Good. Pp. 193–208.

(*c*) See "Specifications for Structural Timber" in 3A7*a*5 from which the following is also quoted:
1. Branding as a Guarantee.
It has been suggested by Mr. Weiss, Director of the United States Forest Products Laboratory, that longleaf pine timber should be branded by the manufacturers. This is an excellent idea. Under present conditions the manufacturers are the only people who can positively say whether the timber is longleaf or not, as the standing loblolly, longleaf, and shortleaf timber exhibits the distinguishing differences in bark, leaves, and cones, not shown when cut into lumber.
After the trees are cut into lumber, it is practically impossible to check grades based upon botanical varieties.
Branding, without a clearly defined description of the several grades of wood, which can be checked by methods within the power of the purchaser, will depend entirely for its value upon the honesty and carefulness of the lumber manufacturer; but, with well-defined physical and chemical specifications, such as those in common use with iron and concrete, the branding can be checked by the purchaser when necessary and will facilitate inspection on the job.

(*d*) The Oak Flooring Service Bureau (5J15) states that "Manufacturers of standard grades of oak flooring designate the grades and color on the back of every bundle."

(*e*) A leaflet (not dated) of the Maple Flooring Manufacturers' Association states:
"This trade-mark MFMA on flooring is a guaranty of quality. It has been adopted as a means of identifying the flooring made by members of the Maple Flooring Manufacturers' Association. Architects, contractors, dealers and consumers can hereafter be sure of getting what they want when they specify or order Association Flooring. The individual factory is indicated by a number following the trade-mark. Trade-marking and advertising are twin pledges of good faith."

(*f*) The following is quoted from Publication (Jan. 1, 1917) of the Southern Pine Association:
1. Branded Timber.
"Proper service to buyers and users of yellow pine timber demands correct grading and the branding or marking of each stick of timber showing its grade. Variation in the individual character of different pieces of timber is responsible for the difference in strength. Structurally, some are much stronger than others. Owing to the confusion which frequently results in the proper classifying of timbers into longleaf, shortleaf, loblolly, etc., a new rule has been devised and recently adopted by the American Society for Testing Materials, and known among the trade as the "Density Rule," which classifies all southern pine timbers, irrespective of botanical species, into two classes, namely, "dense southern yellow pine" and "sound southern yellow pine. The Southern Pine Association recommends that all timbers be branded. All manufacturers and dealers are invited to brand their timber in accordance with the grades and classifications contained in this book."

(*g*) In a folder received April 24, 1916 (undated), issued by the associated mills mentioned below, it is stated: "When you specify timbers bearing the brand of the Associated Calcasieu Longleaf Mills you are not only assured strength, durability and long wear in every timber, but you are also guaranteed grading according to the specifications of the Factory Mutuals, American Society of Testing Materials, American Railway Engineering Association, and the Southern Pine Association."

5D7 *Standardization and Conservation*

These comments, of course, are quite independent of any reference made elsewhere, principally under the A and B divisions, to the important work along these lines being done by the Forest Service and the Committees and Associations which coöperate with it, not only as concerns structural lumber, but the other utilizations of forest products.

(*a*) Concerning these subjects the two extracts which follow from the Proceedings of the National Lumber Manufacturers' Association are of especial interest:
1. In 1915 the Committee on Standardization reported as follows—
"A previous committee on standardization of lumber sizes made a report giving the various sizes which are standard in the different lumber-producing localities, but no result toward having a single schedule of sizes adopted and made use of universally was obtained. The conditions now prevailing operate against such a benefit being obtained, and it seems as if we must wait until things become more favorable."
2. At the 1916 Convention it was:
"*Resolved*, That in the interest of efficiency, economy, and reasonable conservation, the National Lumber Manufacturers' Association approves the manufacture of odd lengths in all forms of lumber where practical from a use standpoint, and urges the support of all manufacturers, wholesalers, and retailers in establishing firmly such practice."

(*b*) It is also of interest to note that the American Railway Engineering Association (1A9*c*) maintains a Committee on Conservation of Timber Supply, recommendations of which Committee will be found printed in the "Manual," 1915, pp. 60, 61.

(*c*) See Forest Circular No. 180 (5D1). "Lumber Saved by Using Odd Lengths," as a step not only in Conservation but in reduction of cost of building.

(*d*) In "North Carolina Pine—Doubly Desirable for Flooring and Ceiling" (5J12*b*) is a description of the saving in material and cost due to this Association's standards for working these products with ¼-inch allowance for tonguing and grooving instead of ¾ inch.

(*e*) See "Grading Rules" of the Maple Flooring Manufacturers' Association (5J14) in which it is stated that modern perfected methods of manufacturing flooring produce a larger proportion of shorter lengths because the defects are cut out closer and that the sentiment in favor of conservation is strongly in favor of utilization to the greatest extent of the valuable woods used.

(*f*) In the "Standard Specifications for Grades of Southern Yellow Pine Lumber," issued by the Southern Pine Association, 1917, it is stated, with respect to grading of flooring "The (above) percentage of short lengths is customary, and in the interest of Conservation will be included, so far as practicable, in all shipments of mixed lengths."

(*g*) In "California Redwood," 5H4*a*, in a chapter entitled "The Use of Redwood 'Short Lengths' is Highly Intelligent Economy," is a most illuminating discussion of the savings and advantages to be obtained by discriminating in favor of conservation and effect through the use of lengths and grades other than the longest and the "select."

5E1 *Treatments of Woods: Preservatives and Fire-Retardents*

(The subjects covered by this heading will also be found described in many of the publications referred to under 5D and 5G, and elsewhere. See also descriptions under 5A for activities of committees concerned with these problems and 5B1*b* for associations interested.)

(*a*) United States Department of Agriculture: Publications listed by Forest Service and Forest Products Laboratories (5A1, under which are also described current activities).
1. Commercial creosotes, with special reference to protection of wood from decay. 1912. 38 pp., illus. (Forest Circular 206.) 10 cents.
2. Relative resistance of various conifers to injection with creosote. 1914. 43 pp., illus. (Agriculture Bulletin 101.) 15 cents.
3. Preservative treatment of poles. 1911. 55 pp., illus. (Forest Bulletin 84.) 15 cents.
4. A primer of wood preservation. (Bulletin No. 139.)
5. Strength and stiffness of natural and treated stringers. (Bulletin No. 286, Sept. 27, 1915.)
6. Specific heat of wood (dry-kiln operation, wood preservation, and distillation). 1912. 28 pp., illus. (Forest Bulletin 110.) 5 cents.
7. Estimation of moisture in creosoted wood. 1908. 7 pp., illus. (Forest Circular 134.) 5 cents.

8. Experiments on strength of treated timber. Second edition, 1908. 31 pp., illus. (Forest Circular 39.) 5 cents. (In the tests the preservatives were creosote and zinc chloride, and the wood was from railroad ties of loblolly pine of Texas and western yellow pine.)
9. Preservation of wood. Pp. 196 to 205. (In Smithsonian Report, 1864.) Price of entire vol., cloth, 70 cents.
10. Recent progress in timber preservation. Pp. 427 to 440. Illus. (From Agriculture Yearbook, 1903.) 5 cents.
11. Report on condition of treated timbers laid in Texas. Feb., 1902. 45 pp., illus. (Forest Bulletin 51.) 10 cents.
12. Strength tests of structural timbers treated by commercial wood-preserving processes. 1915. 15 pp., illus. (Agriculture Bulletin 286.) 5 cents.
13. Tests of wood preservatives. 1915. 20 pp., illus. (Agriculture Bulletin 145.) 10 cents. (The results of testing 30 preservatives are given.)
14. Visual method for determining penetration of inorganic salts in treated wood. 1911. 5 pp., illus. (Forest Circular 190.) 5 cents.
15. Wood preservation in United States. 1909. 31 pp., illus. (Forest Bulletin 78.) 10 cents. (Describes various processes for treating wood.)

(*b*) National Lumber Manufacturers' Association:
1. "Tests of Fire Retardents, with special reference to the Shingle Roof," Hermann von Schrenk and Arnold von Schrenk. Technical Letter No. 2. May 27, 1916.
2. "Preliminary Report on Tests with Fire-Retardent Compounds on Wood," Hermann von Schrenk and Arnold von Schrenk. Proceedings, 1916, pp. 96–117; illus.
3. See sections on "Fire Retardents" and "Wood Preservation" in "Timber for Structural Purposes," 5D4*a*1.
4. See one of the series of Farm Bulletins referred to under 5G1*c*, entitled "The Preservative Treatment of Farm Timbers."
5. See other publications referred to under 5F (Piling), many of which also deal with treatments of woods.

(*c*) National Fire Protection Association:
1. "Uses of Wood in Building Construction." Committee Report. Data of tests on inflammability of untreated wood and of wood treated with fire-retarding compounds. 55 pp., illus. (3A3*d*36); also in Proceedings, 1915, pp. 106–158.

(*d*) Inspection Department, Associated Factory Mutual Fire Insurance Companies:
1. See "Dry Rot in Factory Timbers" (3A7*a*45). Contains a chapter on "Chemical Treatments to Prevent Rot," and one on "Penetration of Antiseptics."

(*e*) American Railway Engineering Association:
1. "Wood Preservation." Adopted Report of Committee, with specifications and illustrations, pp. 539–557; Manual, 1915.

(*f*) American Wood Preservers' Association:
1. Annual Reports contain many authoritative and helpful papers upon methods of protecting timbers from decay.

(*g*) American Society for Testing Materials:
1. See Report of Sub-Committee VI on Timber Preservatives, Proceedings, 1916 (1A4*a*), pp. 328–339.
2. See "Tentative Specifications for Southern Yellow Pine Timber to be Creosoted," Proceedings, 1916 (1A4*a*), pp. 483, 484. Serial designation. D24–15T.
3. See "Tentative Specifications for Southern Yellow Pine Piles and Poles to be Creosoted," Proceedings, 1916 (1A4*a*), pp. 485, 486. Serial designation D25–15T.

(*h*) Southern Pine Association:
1. "Southern Pine Manual—Standard Wood Construction," 1917 (5G2*i*1), contains information on "Creosoting," pp. 99–103.

(*j*) California Redwood Association:
1. "The Test by Fire." Leaflet on the remarkable quality of California Redwood; illustrated.

(*k*) West Coast Lumbermen's Association:
1. "Structural Timber Handbook on Pacific Coast Woods," copyrighted 1916 (5G2*j*1), contains information on "Creosoting Douglas Fir."

(*l*) Association of Creosoting Companies of the Pacific Coast:
1. "Creosoting Douglas Fir Bridge Stringers and Ties without loss in Strength," Feb. 1916, 27 pp., contains tables, diagrams, and illustrations.

(*m*) See "Tests of Timber Beams," Arthur N. Talbot. Bulletin No. 41, University of Illinois Experiment Station, 1910 (3C2*a*2); contains information on "Treated Timbers."

(*n*) See "Preservation of Structural Timbers," Howard F. Weiss. 1915.

(*o*) "Mechanical Engineers' Handbook," Lionel S. Marks, 1916.
1. "Timber Preservation," H. von Schrenk; pp. 580–583.

(*p*) "Building Construction and Superintendence," Part II, Carpenters' Work, F. E. Kidder, 1915.
1. "Methods of Preserving Timber," pp. 35–37.

(*q*) "Fire Prevention and Fire Protection," J. K. Freitag.
1. "Fireproof Wood," pp. 260–262.

(*r*) Journal of the Society of Constructors of Federal Buildings.
1. "Preservative Treatment of Structural Timber and Piles," H. G. Richey, April, 1917, pp. 194–206.

(*s*) Trautwine's Civil Engineer's Pocket-Book.
1. Preservation of Timber, pp. 954–957.

(*t*) "Lumber and Its Uses" (5B1*f*).
1. Section on "Wood Preservation" describes prevention of decay, and brush, pressure, and open-tank methods of treatment.
2. "Fire-Resistance" gives data on natural and artificial qualities, and describes "fireproofing" processes and fire-retardent paints.

5E2 *Treated Wood Flooring and Paving*

(*a*) National Lumber Manufacturers' Association:
1. "Creosoted Wood Block Paving," Walter Buehler; Technical Letter No. 1, May, 1916. Paper presented before the Arkansas Good Roads and Drainage Association, at Little Rock, Ark., April 12 and 13, 1916.
2. "Standard Specification for Creosoted Wood Block Pavement," Technical Letter No. 8, Nov. 25, 1916. (14 p. Specification, separately backed, contains several diagrams.)

(*b*) Southern Pine Association (See also p. xi):
1. "Noise, the Nerve-Wrecker—How to Eliminate It in Your City." 20 pp. Illustrated book on wood block pavements.
2. "What the Cities Say about Creosoted Wood Block Pavements," 24 pp., illus., being the opinions of civil engineers, paving experts, street commissioners and citizens' leagues, with comments by the United States Government.
3. "Floors of Service, for Factories, Foundries, Machine Shops, Mills, Warehouses, Platforms, Bridges, Loading Docks, Stables, Barns, etc." 31 pp., illus. Deals with heavy service floors, with especial reference to the points of durability, safety, and practical economy.
4. "Use of Creosoted Wood Blocks for Floors." Illus., reprinted from *The Iron Trade Review*, March 11, 1915.
5. "Creosoted Wood Block Floors for Railroad Buildings." Illus., reprinted from *Railway Age Gazette*, December 17, 1915.

(*c*) The West Coast Lumbermen's Association, and The Association of Creosoting Companies of the Pacific Coast:
1. "Facts about Paving Bridge Floors." 6-page leaflet.
2. "Creosoted Douglas Fir Paving Blocks." 46 pp. Contains tables, diagrams, and illustrations; revised Oct., 1915.

(*d*) American Society of Municipal Improvements:
1. "Specifications for Creosoted Wood Block Paving," adopted Oct. 13, 1916, copyrighted 1917. Any municipality which is represented in the membership of the Society by one or more city officials will be given free permission to use these specifications or any part of them upon application to the Secretary. 23 pp.

(*e*) Southern Pine Association (See also p. xi):
1. "Southern Pine Manual—Standard Wood Construction," 1917 (5G2*i*1). Contains a section, with diagram, on "Creosoted Wood Block Floors," pp. 126, 127.

(*f*) "Lumber and Its Uses" (5B1*f*).
Section on Wood Block Paving gives "Essentials" and specifications.

5F Piling, Piers, and Bulkheads

(The subjects covered by this heading will be found also described in many of the publications referred to under other headings.)

1. United States Department of Agriculture:
   (*a*) Preservation of piling against marine wood borers. 1908. 15 pp., illus. (Forest Circular 128.) 5 cents.
2. National Lumber Manufacturers' Association:
   (*a*) "Chicago's Four Million Dollar Pier." Technical Letter No. 3, June 12, 1916. Reprint from *Lumber World Review*, May 10, 1916.
   (*b*) "Interesting Comparison of Two Docks Recently Constructed in the City of Chicago, Illinois." Technical Letter No. 7, Sept. 5, 1916.
   (*c*) "Timber in Pier and Wharf Construction." A plain statement of facts and summary of data in regard to the use of timber in water-front structures, together with authoritative testimony from experienced engineers who have compared its fitness, durability, and cost with concrete in similar cases. Technical Letter No. 9, Nov. 30, 1916.

3. American Railway Engineering Association:
   (*a*) "Wooden Bridges and Trestles." Report of Committee. Manual, 1915 (1A9*c*) and (5G3*g*1). Contains sections on piles and pile-driving, with principles of practice and specifications for same.
4. National Board of Fire Underwriters:
   (*a*) "Building Code," 1915 (3A4*d*1). Contains: Section 19, "Wooden Piles."
5. West Coast Lumbermen's Association:
   (*a*) "Structural Timber Handbook on Pacific Coast Woods." Copyrighted 1916, (5G2*j*1). Contains section on "Piling," with diagram, pp. 255–259.
6. Journal, Society of Constructors of Federal Buildings:
   (*a*) "Pile Foundations," William S. Van Loan. Nov., 1914, Paper No. 165, p. 409.
   (*b*) "Pile Tests at the Site of the Boston Appraisers' Stores," William N. Collier. Sept. 1915, Paper No. 187, p. 278.
   (*c*) "Test Piles," Ernest G. Schurig. Nov., 1915, Paper No. 195, pp. 332–336.
7. The Building Trades' Handbook. See "Piles," pp. 157, 158, and "Spread Footings," p. 162.
8. See Kidder's Pocket Book, 1916. Contains section on "Wooden Pile Foundations," pp. 188–196.
9. American Civil Engineers' Pocket Book, 1916, M. Merriman. Contains section on "Piles and Pile-Driving," by Ira O. Baker and other sections on "Piers," "Docks," "Ferries," and "Harbor and River Works."
10. Mechanical Engineers' Hand Book, 1916, Lionel S. Marks. Also contains sections on "Piles" and "Driving" and other data.
11. Specifications issued by District Engineer, War Department, New Orleans, for "Piles, Wallings, Lumber, and Bulkheads" for Southwest Pass, Mississippi River; Jan. 16, 1917.
12. See Proceedings of the American Society of Civil Engineers. List of engineering articles of interest, published monthly.
13. See index to Journal of the American Society of Mechanical Engineers.
14. See index to the Journal of the Western Society of Engineers.

5G Wood in Buildings and in Structures in General

(See publications mentioned under Standing Timber and Manufactured Lumber, in many of which features of building construction are treated in connection with those main subjects.)

(See all subdivisions for separate features of construction and for accessories and devices.)

5G1 *Information Obtainable:*

(*a*) See, in addition to those elsewhere mentioned, the following publications of the National Lumber Mfrs.' Association (5B1):
   1. "The One-Story School-House Idea," F. Leather. (Prepared in coöperation with the United States Bureau of Education (5B1*e*). Feb., 1917. Contains 56 pages of valuable data on this type of school building, with a list of over one hundred one-story schools in America, and many plans and other illustrations. Includes technical suggestions and data for architects, fire-resistive wood construction, and discussions of heating, ventilation, and other subjects and is an important publication for every one interested in the study of one-story buildings as compared with those of greater height.
   2. "Your Garage—How to Build it." November, 1916. 16 pp. Contains floor-plans and elevations. 10 cents. (5B1*c*).
   3. "John Smith's Garage" (5B1*e*).
   4. "Wood Construction in Relation to Fire Losses" (5B1*e*).
   5. "The Shingle Roof" (5B1*c*).

(*aa*) See "Lumber and Its Uses" (5B1*f*), which contains, among others, elsewhere referred to, sections on the "Uses of Lumber," "Structural Timbers," "Lumber Prices," and "Permanent Advantages of Wood."

(*b*) See among others the following publications of the National Fire Protection Association listed under 3A3*a* to *h*:
   1. "Mill Construction Buildings," C. E. Paul, (3A3*d*32*a*).
   2. "Requirements for Standard Mill Constructed Building," Proceedings, Vol. 12, p. 103, and Vol. 21, 1917.
   3. See "Warehouses, Construction and Protection," C. H. Patton, Proceedings, Vol. 14, p. 125.
   4. Read Index 1916, for list of all subjects covered in the printed records of the N.F.P.A., many of which pertain to the varied uses of wood in general building construction.

(*c*) See Crosby-Fiske-Forster Hand Book of Fire-Protection. (Sixth edition now in preparation.)
   1. "Slow-Burning Construction: Recommendations for Mill Construction."
   2. "Improvements for Existing Buildings."

(*d*) See "Fire-Prevention and Fire-Protection," J. K. Freitag.
   1. "Slow-Burning or Mill Construction," Chap. IV. Contains description and typical diagrams, pp. 69–112.

(*e*) See Kidder's Pocket Book, 1916:
   1. "Wooden Mill and Warehouse Construction," A. P. Stradling, Supt. of Surveys, Philadelphia Fire Underwriters' Association, Chap. XXII.
   2. "Strength of Wooden Columns." Tables of safe loads, metal caps and bolsters for wooden columns, pp. 448–454.
   3. Data on wooden beams, formulas and tables, working unit stresses for woods, pp. 627–647.
   4. For built-up wooden girders, trussed beams and types of roof trusses, see separate Sections.
   5. For strength and stiffness of wooden floors, with tables of load for floors and rafters, see separate Chapter referred to under 5J2.

(*f*) See Trautwine's Civil Engineers' Pocket Book, for strength of timber and wooden columns, and for price list and business directory.

(*g*) See "Building Construction and Superintendence," Part II "Carpenters' Work," F. E. Kidder:
   1. See Chapter II, "Wooden Framing, Ordinary Construction," pp. 89–166. Profusely illustrated with framing plans and diagrams, and describing walls, floors, partitions and roof construction.
   2. See Chapter VII, "Heavy Wooden Framing," pp. 668–741. Also fully illustrated and describing flooring, trusses, girders, and mill-construction in detail, with post caps, wall boxes, hangers, stirrups, and all accessories.
   3. See Form of Specifications (for woodwork, millwork, painting, finishing, and other parts of wooden building construction), Chap. VIII, pp. 742–810.
   4. See Part III, separate volume on "Trussed Roofs and Roof Trusses."

(*h*) See "Mechanical Engineers' Handbook, 1916," Lionel S. Marks:
   1. "Building Construction," pp. 1,264–1,304.
   2. "Industrial Buildings," Charles Day, pp. 1,317–1,333.

(*j*) See "Mechanical Engineers' Pocket Book," William Kent, for notes and tables on walls, floors, columns, and other data, pp. 1,385–1,394, "Construction of Buildings."

(*k*) See "The Building Estimator's Reference Book," Frank R. Walker, second edition, Feb. 1, 1917. Contains, in addition to sections elsewhere referred to, a complete treatise on "Rough Carpentry," Chap. X, including data on materials and labor required, costs in various parts of the country, pertaining to all forms of wooden construction and accessories.

(*l*) See Proceedings of the American Society for Testing Materials, Vol. XVI, Part I (1A4*a*):
   1. Report of Committee (D7) on Timber.
   2. See also Mr. von Schrenk's description under 5A2.

(*m*) See "American Civil Engineers' Pocket Book," M. Merriman:
   1. "Materials of Construction," Rudolph P. Miller, "Timber," pp. 360–370.
   2. "Masonry and Timber Structures," W. J. Douglas, pp. 651–702.

(*n*) See "Materials of Construction," Johnson.

(*o*) See "The Building Trades' Handbook" for information on Carpentry Joints; Balloon Framing; Joints in Joinery; Estimating Carpentry and Joinery; Weights of Floors, Partitions, and Roofs; Beams and Girders; Roof Trusses; Columns; Furring and Lathing.

(*p*) University of Illinois, Engineering Experiment Station (3C2*a*2):
   1. "A Study of Roof Trusses," N. Clifford Ricker. Bulletin No. 16, 1908. 15 cents.

(*q*) Southern Cypress Manufacturers' Association:
   1. See the volumes of "Cypress Pocket Library," covering all uses for cypress (5H10*a*).

For information on the use of yellow pine in building construction, see the Industrial Section, p. xi, Southern Pine Association.

For information on oak, see Industrial Section, p. viii, American Oak Mfrs. Association.

5G2 *Practice Recommended and Suggested by:*

(*a*) United States Department of Agriculture, Forest Service and Forest Products Laboratory:
   1. See such of the publications, which are listed under 5D1, as may apply to this subdivision.

(*b*) United States Bureau of Mines:
   1. "Magazines and Thaw Houses for Explosives." Technical Paper No. 18 (2A3*c*). 34 pp. text, data and diagrams.

(*c*) National Lumber Manufacturers' Association (5B1):
   See, in addition to those elsewhere mentioned:
   1. "Building Code Suggestions" (Fire Stops, Careful Workmanship, and Proper Selection of Materials as Safeguards in Frame Dwelling Construction). Technical Letter No. 4, Aug., 1916. Contains construction details.

2. "Building Code Suggestions" (Chimneys, Flues, Smokepipes, and Fireplaces in Their Relation to the Fire Hazard in Dwellings, with Detailed Provisions for Incorporation in Municipal Building Codes). Technical Letter No. 5, Aug., 1916. Contains construction details.
3. "Economics of Concrete and Timber Factory Buildings," F. E. Davidson, President Illinois Society of Architects. Technical Letter No. 6, Sept. 2, 1916.
4. "Heavy Timber Mill Construction Buildings," C. E. Paul. Engineering Bulletin No. 2, May, 1916 (5B1*b*). Contains chapters on: Mill Construction Defined; Exterior Walls, Fire Walls, and Enclosures; Floors; Posts or Columns; Roofs; Fire Protection; Cost of Mill Construction Buildings; Standard Mill Construction; Quality and Kind of Timber Used; Formulas for Design in Mill Construction (with table of working unit stresses). 67 pp. 50 cents.
5. Helpful suggestive bulletins on "Rural Architecture" (5B1*a*). The ten issued to date bear the following titles:
   (*a*) Dairy and General-Purpose Barns; (*b*) Teachers' Cottages; (*c*) Poultry Houses; (*d*) Farm Residences; (*e*) Implement Sheds; (*f*) Ice Houses; (*g*) Silos; (*h*) Grain Storage Buildings; (*j*) Swine Houses; (*k*) The Preservative Treatment of Farm Timbers.
   These publications are of especial interest and value to all architects concerned with the development of rural or suburban properties along practical, scientific, and harmonious lines. The publication of these Bulletins covering different farm units is most commendable as a distinct step in the elevation of the standards obtaining in these so frequently neglected types of structures. The reported demand for these publications is indicative of the interest aroused on the part of architects and others desirous of developing a finer type of rural architecture.
6. "Teachers' Cottages," R. S. Kellogg, in coöperation with the United States Bureau of Education, April, 1916 (5B1*a*). 31 pp., with illustrations of foreign and American accommodations for teachers and a valuable list of articles and publications for reference.

(*d*) National Board of Fire Underwriters:
1. "Building Code," 1915 (3A4*d*1). (See description by Mr. Woolson under 3A4.) Will be found to offer invaluable suggestions and assistance on all features of construction both generally and specifically. In addition to buildings in general and all parts of their construction, the following are separately treated: Classification of Buildings, Ordinary Timber Construction, Mill Construction, Frame Buildings, Structural Timber, Working Stresses of Structural Timber. Allowable Loads, and Fire Stopping.
2. "Dwelling Houses," 1916 (3A4*d*3). (See description by Mr. Woolson 3A4.) Contains sections on "Frame Dwellings," "Fire Stopping," Floor and Roof Construction," and others of interest. See index to same.

(*e*) National Fire Protection Association:
1. "Field Practice: Inspection Manual." See description 3A3*d*1.
2. "Structural Defects: Suggestions for Their Elimination and Protection" (particularly with reference to safeguarding existing features) (3A3*d*32*b*).

(*f*) Inspection Department, Associated Factory Mutual Fire Insurance Companies:
1. See "Anchorage of Roofs" (3A6*a*1) for detail drawings and recommendations for securing wooden roofs.

(*g*) The American Society for Testing Materials:
1. Tentative specifications for "Selected Structural Douglas Fir Bridge and Trestle Timbers," Proceedings, 1916 (1A4*a*), pp. 479–482. Serial designation D23–16T.

(*h*) The Associated Metal Lath Manufacturers (See also p. xxix):
1. See "Metal Lath Handbook." Contains descriptions and detail drawings for "Protection of Steel Beams in Slow-Burning or Mill Construction;" "Fire Stops;" and "Mill Construction Buildings Protected by Metal Lath and Plaster."
2. Illustrations from the Metal Lath Hand Book, showing details of ceiling construction and giving important recommendations on the weight of metal lath will be found in the Industrial Section on p. xxix.

(*j*) West Coast Lumbermen's Association:
1. "Structural Timber Handbook on Pacific Coast Woods," copyrighted 1916, 289 pp. Contains description of Pacific Coast Woods, specifications, tables for beams and floors, safe loads, diagrams and illustrations. $1.
2. "The Douglas Fir Silo," 24 pp., illus.

(*k*) Association of Creosoting Companies of the Pacific Coast:
1. "Structural Timber Handbook."
2. "Strength Values for Structural Timbers."
3. "The Douglas Fir Silo."

(*l*) Southern Pine Association (See also p. xi):
1. "Southern Pine Manual: Standard Wood Construction," 1917 (fifth edition). Contains, in addition to sections elsewhere referred to, diagrams, tables, specifications, grades of timbers, and data relating to beams, columns, floors, partitions, etc. 128 pp. Leather bound, $1.
2. "Implement Sheds," 11 pp. Contains: Table Showing Floor Space and Height of Space Required to House Common Farm Implements.
3. "Service and Economy in Building," 23 pp., illustrated.
4. "The Home-Built Garage," 16 pp., illustrated.

(*m*) California Redwood Association:
1. "California Redwood on the Farm," 38 pp., illustrated. Contains descriptions of many uses and recommendations for painting or staining this wood. See reference under "Shingles," 5K.
2. "The Home of Redwood." Illustrating and describing exterior and interior of building erected at the Panama-Pacific International Exposition by this Association, L. C. Mulgardt, architect.

(*n*) Arkansas Soft Pine Bureau:
1. "How to Build," 24 pp., with illustrations of the wood, and diagrams of framing construction and of exterior wooden walls, with other recommended practice in frame construction.

(*o*) White Pine Bureau (See also p. xiv):
1. "White Pine in Home-Building." A book of 35 pages, describing the qualities, availability, and cost of White Pine, with many illustrations of attractive exteriors with "close-up" views of entrances, fences, and other features.
2. The White Pine Series of Architectural Monographs. These publications, especially prepared for architects, under the direction of Mr. Russell F. Whitehead, are unusually interesting and suggestive as exemplifying the artistic and lasting qualities which may be obtained through the use of wood in the construction of buildings and in the embellishment of the structures and their surroundings. These Monographs were issued to present classified illustrations of wood construction critically described by representative American architects, the pictorial side being made the dominant feature and the example being selected for their general attractiveness. Beginning with July, 1915, nine volumes as follows have been issued to January, 1917. Copies of current issues may be had upon application to Mr. Whitehead, the Editor.

   Vol. I, No. 1, Colonial Cottages. Text by Joseph Everett Chandler.
   Vol. I, No. 2, New England Colonial Houses. Text by Frank Chouteau Brown.
   Vol. I, No. 3, Farm Houses of New Netherlands. Text by Aymar Embury II.
   Vol. II, No. 1, Houses of the Middle and Southern Colonies. Text by Frank E. Wallis.
   Vol. II, No. 2, Domestic Architecture in Massachusetts. Text by Julian Buckly.
   Vol. II, No. 3, Early Houses of the Connecticut River Valley. Text by Richard B. Derby.
   Vol. II, No. 4, A Suburban House and Garage. Report of Jury of Award.
   Vol. II, No. 5, Old Woodbury and Adjacent Domestic Architecture in Connecticut. Text by Wesley S. Bessell.
   Vol. II, No. 6, Colonial Architecture of the Eastern Shore of Maryland. By Charles A. Ziegler.

(*p*) Carnegie Steel Company:
1. See "Pocket Companion," Jan. 1, 1916, for Allowable Uniform Loads for Wooden Beams and Columns of various woods, Specific Gravities and Weights, and other tables.

(*q*) Jones & Laughlin Steel Company:
1. See "Manual" for Architects, Engineers and Contractors, 1916, for Allowable Uniform Loads for Wooden Beams and Columns of various woods, Specific Gravities and Weights, and other tables.

5G3 *Standards Adopted*

(*a*) "Building Codes." The mandatory provisions of all Codes, state or municipal, must first govern construction in each locality, as mentioned under 4B3*a*.

(*b*) See also 4B2*b*, and the publications of the National Lumber Manufacturers' Association mentioned under 5G2*c*1 and 2, for reference to the Building Code recommended by the National Board of Fire Underwriters as a proposed standard.

(*c*) By the National Board of Fire Underwriters (recommended by the N.F.P.A.):
1. "Hose Houses for Mill-Yards: Construction and Equipment," (3A3*a*13).

(*d*) By Inspection Department, Associated Factory Mutual Fire Insurance Companies:
1. See 5D3*d*2 for small illustrations and brief reference to standard mill and factory construction.

(*e*) By American Society for Testing Materials:
1. Standard Specifications for Yellow Pine Bridge and Trestle Timbers. Serial designation D10–15.
2. See Standard Definitions of Terms (5D3*a*1).

(*f*) By Associated Mutual Fire Insurance Companies of New England:
1. "Standard Mill Construction," shown in Report V, issued by the Insurance Engineering Experiment Stations under direction of Boston Manufacturers' Mutual Fire Insurance Co. Illustrated and described in Chapter VIII of 5G2*c*4. Report now obtainable from the Associated Factory Mutual Fire Insurance Companies (3A7*c*), by whom the work of the Experiment Station has been taken over.

(*g*) By American Railway Engineering Association:
1. "Wooden Bridges and Trestles" (5F2*a*), Manual 1915, pp. 219–246. Contains sections on Standard Defects of Structural Timber; Standard Names for Structural Timbers; Standard Specifications for Southern Yellow Pine Bridge and Trestle Timbers; Standard Heart Grade, Longleaf Yellow Pine; Standard Grade, Longleaf and Shortleaf Yellow Pine; Standard Specifications for Douglas Fir and Western Hemlock Bridge and Trestle Timbers.
2. See Grading of Lumber (5D3*b*).

(*h*) For dividing of floor areas, types of partitions, stair enclosures, and other features of industrial buildings, see "Universal Safety Standards," 1914. Compiled under the direction of and approved by the Workmen's Compensation Service Bureau, New York.

(*i*) By Underwriters' Laboratories:
List of appliances inspected for accident hazards, first issue July, 1916, revised, January, 1917, covers a variety of safety appliances which are regularly inspected and labeled under the Underwriters' Laboratory label service. This work is carried forward in coöperation with the Workmen's Compensation Service Bureau.

(*j*) For mechanical post cap and girder supports and other appliances and materials inspected and labeled or approved, with names of the articles and manufacturers, see:
1. List of Inspected Mechanical Appliances (3A6*b*).
2. Approved Fire Protection Appliances, Oct. 1916 (3A7*a*3).

(*k*) See all references in N.F.P.A. Index to "Uniform Requirements."

(*l*) For wood cores in fire doors and shutters, see the various publications mentioned under 4C3.

(*m*) For wooden tanks, see 4D5.

5G4 *Some Wood-Construction Accessories*

(*a*) Very important, with respect to the reductions of shrinkage in construction when open and the cracking of plaster when closed, is the consideration of post caps, hangers and other devices designed, not only for structural support, but to overcome some of these defects. Reference to these accessories will be found in many of the publications listed in this issue and also as follows:

(*b*) For Floor Hangers, Roof Connections, and Devices, see 4D4.

(*c*) For Scuppers, Inserts and Devices, see 4C4.

(*d*) Pulleys. This is an important question in connection with millwork. In addition to the finish of the article, so much depends upon the construction and size—determined by the use, the area and weight of sash, size of box and other considerations. The matter of standardization has been carefully worked out by the Columbian Hardware Co. as exemplified by the data printed in the Industral Section on pp. XXIII, XXIV, XXV.

(*e*) "Nail Knowledge," Oct. 2, 1915, and "More 'Nail Knowledge' ", W. T. Flanders, *American Lumberman*, Nov. 27, 1915. Articles of much interest in connection with the use of wood and the lasting qualities of nails used.

(*f*) For correspondence concerning lathing nails, see 5M3.

(*g*) For information on self-releasing fire-exit latches, see Industrial Section, p. XXXII, Vonnegut Hardware Co.

(*h*) For Lightning Protection, see 4G.

(*j*) The use of units individually applied for "grounds" instead of plugging walls for continuous wooden stringers and for laying of "sleepers" for wooden floors is receiving the attention of manufacturers, as evidenced by circulars and catalogues distributed. See same for information.

5H Exterior and Interior Wood Finish, Veneering and Finishing

United States Department of Agriculture (Forest Service):
(*a*) "Sugar Pine." Professional paper, Bulletin No. 426, 15 cents. Describes the qualities of this as an important wood in the manufacture of special and general millwork.
(*b*) "Veneers" (statistics and method of production), 1906, 6 pp. (Forest Circular 133), 5 cents. 1909, 23 pp. (Forest Products 5), 5 cents, 1910, 6 pp., 5 cents. 1911, 8 pp., 5 cents.
(*c*) "Circassian Walnut," 1913, 12 pp., illus. (Forest Circular 212), 5 cents.

(For Floors and Floor Finishing, see 5J.)

1. See "Lumber and Its Uses" (5B1*f*):
(*a*) Section on "Standard Sizes of Lumber" gives Association Standards for Flooring, Ceiling, Partition, Siding, Finish, Shiplap Boards, and Dimension Work.
(*b*) Section on "Permanent Advantages of Wood" treats of Availability, Strength Compared with Weight, Workability, Insulating Qualities, and Figure.
(*c*) Section on "Paints and Wood Finishes" describes: Preparatory Treatments, and gives Specifications of Master Painters for Exteriors, Interiors, Hardwoods, and Softwoods.

2. Southern Pine Association (See also p. XI):
(*a*) "The Standard Moulding Book," 1916, 37 pp., illustrated with Patterns of Full-sized Mouldings and all forms of finish in Southern Yellow Pine.
(*b*) "Directions for Finishing Southern Yellow Pine," 19 pp., colored fac-similes of finished woods and other illustrations, including interiors, with notes on painting, staining, and varnishing of this wood.
(*c*) Service and Economy in Building (5G2*n*). Also similar in contents to (*b*) without the colored plates.
(*d*) See "Standard Specifications for Grades of Southern Yellow Pine Lumber." Contents described under 5D4*f*2.

3. Gum Lumber Manufacturers' Association (See also p. IX):
(*a*) "Technical Information about Red Gum," (no date), 16 pp. Illustrating and describing the figure in this wood, with notes on the care of hardwood doors and trim.
(*b*) "Red Gum Facts" (no date), 13 pp. Illustrating and describing interior and other uses and with formulas for various finishes.
(*c*) For many illustrations and much illuminating information on processes of manufacture, methods of using, kinds of veneers and other data, see *Canadian Woodworker and Furniture Manufacturer* for April, 1917, being a Feature Number on Gum Lumber.

4. California Redwood Association:
(*a*) "California Redwood," 70 pp., colored illustrations. Treating of the use of redwood for interior trim and offering many suggestions in addition to giving "Directions for Rare Finishes on Redwood." Eight large colored panels show in facsimile varying effects of grain also. See 5D7*g* for reference to discussion of lengths and selections.
(*b*) "In the Home of Redwood" 5G2*m*2. The use of this wood in interiors is described and formulas are given for interior finishes.

5. Arkansas Soft Pine Bureau:
(*a*) "Architects' Manual on Arkansas Soft Pine," copyrighted 1916, 62 pp., illus. Includes complete description of the wood as to Origin, Individuality, Physical Characteristics, Proper Uses, Proper Finishing, Painting Formulas, and contains table of Board Measure and 30 pages of full-sized drawings of all kinds of exterior and interior trim, frames, sills, rails, and Standard Molding Designs and Grading Rules for all forms of finish.
(*b*) "Arkansas Soft Pine: Interior Trim," 18 pp., colored and other illustrations.
(*c*) "Arkansas Soft Pine: How to Finish and Paint It," copyrighted 1917, 23 pp., illus.
(*d*) "Not a House but a Home." Home Construction, Hints for the Layman; Description of Wood; Cottage and Residence Designs, with introduction of Aymar Embury II, architect. 36 pp.

6. West Coast Lumbermen's Association:
(*a*) "Suggestions for the Finishing of Western Woods."

7. Society of Constructors of Federal Buildings:
(*a*) "Fumed Oak," Chas. E. Morrell. Journal, Nov., 1915, Paper No. 198, pp. 342–343.

8. White Pine Bureau (See also p. XIV):
(*a*) "White Pine Specifications." This is an exhaustive treatise, in preparation, and now almost completed, to supply the information heretofore lacking with respect to "frame construction" and the grades of lumber. It has been designed especially for architects to assist them in specifying and to enable them to refer in the language of the lumber trade to the specific grades of white pine most economically adapted to various building uses.
(*b*) See "Architectural Monographs," described under 5G2*q*2.

9. North Carolina Pine Association:
   (*a*) "Architects' and Contractors' Reference Book on North Carolina Pine," 7 pp., illus. Contains information on the origin and nature of the wood, its adaptability, its use in connection with interior and exterior work and for various types of buildings, comparative cost, and colored illustrations of finish.
   (*b*) "North Carolina Pine for Architects and Contractors," 15 pp., colored illustrations, of stained boards and illustrations of exteriors. Treats of the character of the wood, its exterior and interior use, its adaptability to staining and enameling, digest of grading rules, use of millwork for doors and sash, cost and availability.
   (*c*) "Your Home Beautiful," 16 pp., colored illustrations of stained boards and colored interior views.
   (*d*) "Planning the New Home," 24 pp. Contains colored illustrations of stained boards; exterior illustrations and floor plans of ten modern homes, together with information on the characteristics of this wood, its adaptability for every use, its cost, and digest of grading rules.
   (*e*) "Architects' Reference Book," 16 pp., color plates.
   (*f*) "Home Builders' Book," 24 pp., color plates.
   (*g*) "N. C. P. Millwork Manufacturers," giving a list of same.
   (*h*) "Inspection Rules," 24 pp. Contents noted under 5D4*k*1.
10. Southern Cypress Manufacturers' Association:
   (*a*) "Cypress Pocket Library." Consists of 41 booklets covering all uses for Cypress (5G1*q*1). See index to same in Vol. 1.
11. See "Veneered Work in Building Construction," G. D. Crain, Jr. Article printed in "Veneers," September, 1916.
12. See Kidder's Pocket Book, 1916, in addition to sections elsewhere referred to.
13. See "Building Construction and Superintendence," Part II, "Carpenters' Work," F. E. Kidder. Contains, in addition to sections elsewhere referred to:
   (*a*) Chapter III describes: Sheathing; Window-frames; Sashes; Store-front Construction; Window-glass and Glazing; Outside-door Frames; Superintendence.
   (*b*) Chapter IV describes: Outside Finish in general; Eaves, Cornices, and Gutters; Gables; Water-tables, Corner-boards, and Belt-courses; Covering of Outside Stud Walls; Porches and Piazzas; Dormers; Skylights and Scuttles; Roofing.
   (*c*) Chapter V describes: Rough Work; Joiners' Work; Doors and Windows, Frames and Finish; Inside Blinds and Coiling Partitions; Bases and Wainscoting; Wooden Cornices, Built-up Beams, and Columns; Miscellaneous Interior Wooden Finish; Stairs; Fixtures and Fittings; Dimensions of Furniture.
   (*d*) Chapter VIII: "Specifications" for: Interior Finish; Painters' Work; also Notes on Painting Specifications.
14. See "The Building Estimators' Reference Book," 1917. Frank R. Walker. Contains, in addition to sections elsewhere referred to:
   (*a*) Chapter XI: "Mill-Work and Interior Finish, Erection of Same;" treats of Methods of Estimating the Labor Cost for Erecting Exterior and Interior Mill-work and Finish.
15. See "Building Trades' Handbook." Contains, in addition to sections elsewhere referred to, information on Windows, and Outside and Inside Finish, with many illustrations.
16. For further information on the use of white pine for exterior and interior finish, with illustration of doorway to house at Bedford, Mass., see the Industrial Section, p. xiv, White Pine Bureau.
17. For more detailed information concerning red gum, with illustrated effects and description of publications of the Red Gum Manufacturers' Association, see p. ix in Industrial Section.
18. For Special Service Department for Architects on the use of cypress in greenhouse construction, see Industrial Section, p. i, Lord & Burnham Co.
19. For description of oak and its uses, see Industrial Section, p. viii, American Oak Manufacturers' Association.
20. For other information on materials to be used in finishing woodwork, see pages in the Industrial Section as follows:
   Special Varnish for Every Purpose." Murphy Varnish Co. P. xii.
   "Kyanize White Enamel." Boston Varnish Company. P. x.
   "Hospital and Laboratory Enamel." Toch Brothers. P. xv.
   "Satinette Enamel." Standard Varnish Works. P. xvi.

5J Wood Floors and Finishes and Parquetry Work

(Treated wood flooring and paving referred to under 5E2.)

In addition to their inclusion in many of the publications elsewhere referred to, these subjects will be found treated in:

1. "The Building Estimator's Reference Book," Frank R. Walker. February 1, 1917.
   (*a*) A complete section on wood flooring, pp. 1318–1381, gives quantities, costs, kinds of materials, methods of laying plain floors, laminated floors, hardwood and parquetry floors, and of scraping sanding, and complete finishing with several pages of illustrations of parquetry floors and wood carpets.
2. Kidder's "Architects and Builders' Pocket Book, 1916." (Revised edition in preparation.)
   (*a*) Strength and Stiffness of Wooden Floors, Thomas Nolan. Chapter XXI. Includes framing plans, tables for plank flooring and all other kinds, illustrations of joist and beam hangers.
   (*b*) See "Data on Lumber and Carpenters' Work," pp. 1472–1478.
3. "Building Construction and Superintendence," F. E. Kidder. Part II, Carpenters' Work.
   (*a*) Floors, p. 519 and following: Grading of Flooring, Weights of Flooring, Laying Flooring, Parquet Flooring, Parquetry Flooring, illustrated with full-size sections of flooring boards and otherwise.
4. Suggested Codes of the N.B.F.U. (3A4*d*1).
   (*a*) "Building Code, 1915." See section giving data on slope of floors in mill-construction and other floors for drainage of water, pp. 129–130.
   (*b*) "Dwelling Houses." See Floor and Roof Construction, pp. 31–39, particularly the recommendations under Section 29 on "Wooden Flooring" for double floors and floors over fireproof construction, with notes on timber.
5. See "Watertight Floors of Mill-Construction" (3A6*a*26). Also contains diagrams of flashings against walls and at columns.
6. "Flooring—Hardwood." Standard Specifications (Specifications and General Notes), Building Data League (2A5*a*), March, 1917.
7. *Quarterly* of the N.F.P.A. See "Index" to subjects, also:
   (*a*) Unit System of Wood Flooring for Fireproof Manufacturing Buildings, C. H. Patton, Vol. 8, No. 1.
   (*b*) Waterproofing Floors, Vol. 7, No. 4.
   (*c*) Enclosures for Floor Openings, Vol. 8, No. 3.
8. "Mechanical Engineers' Pocket Book," Wm. Kent. 1916.
   (*a*) Floors, Strength of floors (planks), pp. 1390–1394.
9. "Lumber and Its Uses" (5B1*f*).
   (*a*) Hardwood Flooring—Kinds, Grades, Uses and Methods of Finishing.
   (*b*) Standard Sizes of Lumber—Association Standards for Flooring.
10. "Structural Timber Hand Book on Pacific Coast Woods" (5G2*f*1).
   (*a*) See sections and tables on Laminated Floors and Mill-Floors.
11. Publications of the Southern Pine Association (See also p. xi):
   (*a*) "Standard Specifications for Grades of Southern Yellow Pine Lumber," 1917 (5D4*g*2). Contains sections on "Heavy Flooring" and on "Flooring," with full-size detailed and figured drawings and describes sizes of material in the rough and when surfaced and finished. Defines sizes, lengths, grades, crook, and gives a special clause for determining average of defects. Grades, as follows, defined: Edge Grain—A, B, C, D, and No. 1 common;—Flat Grain—A, B, C, D, No. 1. Common, No. 2, common and No. 3. Sheathing (or No. 3 Common Flooring); also refers to Standard Matched Flooring, Center Matched Flooring, and No. 1, Common Factory Flooring and Heart Face Edge Grain.
   (*b*) "The Gulf Coast Classification of Pitch Pine Resawn Lumber and Sawn Timber," 1915 (5D4*g*3), gives list of sizes of flooring and defines grades as follows: Rift, Special (Crown and French Flooring), Prime (Heart Face), Standard (Genoa Prime), Merchantable, and Square Edge.
   (*c*) "Yellow Pine—A Manual of Standard Wood Construction." (5G2*m*1.) See Properties of Yellow Pine Mill Floors and Laminated Floors and tables and other data on heavy floor construction.
   (*d*) "Directions for Finishing Southern Yellow Pine" (5H2*b*). See section on Finishing Southern Yellow Pine Floors; contains general directions and recommendations as to the wood, manner of laying and methods of finishing floors in residences.
   (*e*) See 5D7*f* for note about short lengths in flooring.
12. Publications of the North Carolina Pine Association:
   (*a*) "Official Inspection Rules," January 25, 1917. Under "Flooring" gives description of the standard lengths and defines the grades, as follows: Flat grain (unless otherwise specified)—No. 1 Flooring, No. 2 Flooring, No. 3 Flooring, No. 4 Flooring; Rift—No. 1 Rift Flooring, No. 2 Rift Flooring. Also describes lengths (same as flooring) for "Factory Flooring and Roofers" and defines grading same as box lumber. Contains full-size detailed and figured drawings of standard gauges for flooring, ceiling, partition, factory flooring and spline.

(*b*) "North Carolina Pine—Doubly Desirable for Flooring and Ceiling," 4-page folder, describes the method used in the working of this wood for these and similar purposes and quotes from Forest Service Bulletin No. 99, about the use of shortleaf pine.
For further reference to this publication see 5D7*d* under "Standardization and Conservation."
(*c*) In "North Carolina Pine for your Home" is given a digest of grading rules adopted by the Association for all forms of finish including flooring.
(*d*) In "North Carolina Pine, the Wood Universal" is given a similar digest.

13. In "Red Gum Facts" (5H3*b*) is a description of the process of kiln-drying and reference to this wood as flooring material as well as for its many other uses.
14. Publications of the Maple Flooring Manufacturers' Association:
(*a*) "Grading Rules—for Maple, Beech and Birch Flooring." Adopted September 24, 1913. Copyrighted and reproduction prohibited. Definitions given: The Clear Grade, the No. 1. Grade, The Factory Grade, Special Grades, Standard Measurement, Custom Governing Reinspection, Advantages of Standard Lengths.
(*b*) "How to Lay and Finish Maple Floors." 1915. Contains: Directions for Laying, Economy of End Matched Flooring, The Proper Nail to Use (with illustrations of kinds and methods), Scraping and Sanding, Directions for Finishing Floors, (oil treatment, wax finish, and varnished floors), Repairing Waxed Floors, Staining Maple, Beech and Birch, Selection of Flooring.
(*c*) "Schoolroom Floors," 1915. A 16-page illustrated treatise.
(*d*) "Individuality in the Home," 1915. 14 pages of suggestions to home-builders with respect to flooring.
(*e*) See statement about branding under 5D6*e* and about short lengths under 5D7*e*.

15. Publications of The Oak Manufacturers' Association of the U. S. and the Oak Flooring Service Bureau:
(*a*) "Oak Flooring." Seventh Edition, 1915. Contains grading rules as follows: Quarter-Sawed—Clear, Sap Clear, Select; Plain Sawed—Clear, Select, No. 1 Common, Factory; also recommendations as to the use of different grades. Also contains, Standard Thicknesses and Widths, How to Arrive at the Amount of Oak Flooring Required, Standard Weights of Oak Flooring, Handling, Laying Oak Floors, with Directions for Kind and Spacing of Nails, Scraping, Finishing (oil, wax and varnish), Care of Oak Floors, and Economical Uses.
(*b*) "How to Lay Oak Flooring." Leaflet. (Not dated, received November 8, 1916.) Contains Grading Rules (changing factory grade of "Plain Sawed" to "No. 2 Common" but with definition as before), The Use of Different Grades, with detailed drawings of Two Ways to Deaden a Floor, Laying, Scraping, Care of Oak Floors.
(*c*) "Three-eighths-inch Oak Flooring—Its Commercial Worth in Old Houses." Leaflet with illustrations and descriptions contributing to this purpose, with the Names and Uses of Different Grades ¾-inch Oak Flooring and ⅜-inch Oak Flooring vs. Carpets. (Not dated, received August 28, 1916.)
(*d*) See statement about branding under 5D6*d*.

16. Arkansas Soft Pine Bureau:
(*a*) "Architects Manual on Arkansas Soft Pine" contains Grading Rules for Flooring, and Heavy Flooring, with description of sizes when worked and drawings and photographic illustrations of flooring.
17. Southern Cypress Manufacturers' Association:
(*a*) In Vol. 1, of the Cypress Pocket Library it is recommended that porch floors should be of cypress.
18. Northern Pine Manufacturers' Association:
(*a*) In "Rules for the Grading of Northern Pine, Spruce and Tamarack Lumber" Association Standard Grades for Flooring define: A Flooring, B Flooring, C Flooring, D Flooring, and Farmers' Clear Flooring.
19. In "Heavy Timber Mill Construction Buildings" (5G2*c*4) is a section devoted to floors, describing general construction with details of laminated floors, sizes of bays, methods of flashing, with tables of allowable floor loads and working stresses.
20. See various publications and recommendations of manufactures of floor finishes which are not here referred to, except as below, the intention being to give at this time the recommendations of the manufacturers of the floors themselves who are of course eminently concerned with the proper treatment and care of their products.
21. For statement with respect to varnish used on floors, see Industrial Section, p. xii, Murphy Varnish Company.
22. For references to oak flooring, see Industrial Section, p. viii, American Oak Manufacturers' Association.

5K Shingles, Lathing and Wall-boards

The subjects covered by this heading will be found included in a great many of the publications referred to under the other subdivisions.

1. See Forest Products—Lumber, Lath and Shingles. 1909, 63 pp. 5 cents; 1910, 45 pp., 5 cents; 1911, 45 pp., 5 cents. Department of Commerce, Bureau of the Census, compiled in coöperation with Department of Agriculture, Forest Service. (Discontinued, see 5D1*d*.) These are statistical summaries.
2. Standard specifications for yellow pine shingles are included in the publication of the Southern Yellow Pine Association mentioned under 5D4*g*2, which also includes standards for lathing and Byrkit lath and gives a list of standard sizes of yellow pine laths.
3. In "The Lumber Users' Guide" (No. 12) listed under 5D4*h*2, the use of Washington red cedar for shingles is touched upon—grades not given.
4. In "California Redwood on the Farm," listed under 5G2*o*1, is a section devoted to redwood shingles and shakes, with interesting illustrations of split-strakes and diagrams for laying shingle and shake roof construction. Contains, also, a description of the grades and recommendations as to the manner of laying.
5. For cypress shingles, see "Classification and Grading Rules for Cypress Shingles" p. 652 of 1915 "Manual" of American Railway Engineering Association. (1A9*c*.) Defines grades—Bests, Prints, Star a Star, Economy and Clippers and standards for quantities and inspection.
6. See Pocket Library of Southern Cypress Manufacturers' Association Vol. 7, "Cypress Shingles (a 'Yes' Book);" Vol. 29, "Cypress Shingle House No. 1;" Vol. 34, "Shingle House No. 2."
7. For red cedar shingles the Shingle Branch of the West Coast Lumbermen's Association adopted grading rules, effective June 25, 1916, entitled "Rite-Grade Grading Rules." See separate leaflet defining same.
Among the many other publications of this Shingle Branch are:
(*a*) "Distinctive American Homes of Red Cedar Shingles." 18 pp.
(*b*) "Bungalow Homes of Red Cedar Shingles." 18 pp.
(*c*) "Farm Buildings of Red Cedar Shingles." 18 pp.
Each of these is attractively illustrated with perspective views, plans and diagrams.
(*d*) "Nails," a leaflet giving sizes and kinds to use for different forms of material, including shingles.
It also publishes a set of twelve "Bungalow Designs" (plans and elevations, specifications and bill of materials), based on the use of shingles.
8. In "Structural Timber Hand Book" published by the same Association (listed 5G2*f*1) will be found several pages describing and illustrating the correct method of laying red cedar shingles, the kind and size of nail to use, and other recommendations. Also "Grading Rules for Red Cedar Shingles Which Have Been in Use Since 1908," as well as the "Rite-Grade" Grading Rules of the Shingle Branch of this Association, above referred to.
9. See "Architects' Manual on Arkansas Soft Pine" (5H5*a*) for drawings and grading rules of lathing, Byrkit lath, lattice and other finish.
10. In "Rules for the Inspection of Hemlock Lumber," adopted by The Northern Hemlock and Hardwood Manufacturers' Association (5D4*d*1), the definitions are given, at length, of No. 1, and No. 2 Lath.
11. In "Report of the Committee on the Uses of Wood in Building Construction" (5E1*c*1), see Part III, Investigation of the Relative Inflammability of Untreated and Treated Siding and Shingles.
12. See "The Building Estimator's Reference Book," F. R. Walker, 1917, for estimating quantities of shingles, labor, nails and other features of construction.
13. In "Building Trades Hand-book" is a treatise on shingles with illustrations and descriptions of laying, gauging, forming hips and valleys and table of quantities; also reference to lathing.
14. "Building Construction and Superintendence," F. E. Kidder. Part II, Carpenters' Work.
(*a*) Wall Shingling. (*b*) Shingled Roofs in General, 18 pages of descriptive matter about kinds and grading of woods, paper lining, laying, ridges and hips, valleys and flashings, and snow-guards, with various tables and diagrams. (*c*) Furring and lathing.
15. See "Association Standard Grades," rules for the grading of northern pine, spruce and tamarack lumber of the Northern Pine Manufacturers' Association. In same is defined No. 1 White Pine Lath; No. 1 Mixed Lath and No. 2 Lath.
16. See Current Comments (5M3) for some interesting correspondence on the subject of lathing.
17. For illustrations and description of a wooden dovetailed lath (creosoted) imbedded in asphalt-mastic on a fiber-board backing, making a stucco or plaster-board, see Industrial Section, p. iii, the Bishopric Manufacturing Co.
18. Shingles may be obtained already treated and stained, whether for "regular" effects or for "thatched roofs," as in the case of "Creo-Dipt" stained shingles; see Industrial Section, p. xlvii.
19. For illustration and description of effects to be obtained by the use of creosote stains on shingles, see Industrial Section, p. xvi, Samuel Cabot, Inc.

5L Recreation Facilities—Bowling Alleys, Billiard Tables and Other Games

As wood is the principal material entering into the construction of games and other recreational facilities which are housed from the weather, and as many of them require and should receive proper consideration in planning on account of adequate provision which should be allowed for their accommodation in the structure, it has been thought well to touch upon the subject of space requirements for some installations here. Other recreational facilities for indoors and outdoors will be treated in subsequent issues.

1. In "Kidder's Pocket Book (1916)" and in some few of the other books referred to in various issues of the Journal will be found, under the Index, names of games and equipment required, and in the text brief descriptions, list of sizes and similar data pertaining to shuffle-boards, squash-courts, and other games.

2. In the Industrial Section of this issue will be found, on p. xiii, authoritative figured installation drawings and measurements for bowling-alleys and lists of sizes of billiard tables and space-requirements as prepared by the makers themselves—the Brunswick-Balke-Collender Co.

3. It should be borne in mind that space-requirements given, while a liberal minimum for satisfactory playing, do not purport to provide space for spectators for whom, when desired, further space-allowance should be made. Columns, pilasters, chimney breasts and other projections should never be allowed to encroach upon the space required, nor to interfere with the player's enjoyment.

5M Current Comment

1. Activities to date, with respect to lumber and its uses structurally, are fully covered under descriptions given of the Forest Service, and of the various committees and associations at the beginning of this issue.

2. The following notation of corrections which should be made in the New York City Building Code is of interest:

Attention is called to incorrect values of working stresses for timber in compression across the grain, still printed and circulated (May, 1917) in the Code of Ordinances of the City of New York, Article 3, Section 51, as amended by ordinance adopted April 20, 1915, effective May 1, 1915. The values given are two or three times as high as they should be and are due to errors in transcribing manuscript, as explained to the undersigned by the Superintendent of Buildings of the Borough of Manhattan.

THOMAS NOLAN,
Chairman Committee on Materials and Methods.

3. In connection with the subject of lathing referred to under 5K, the subjoined correspondence between the Chairman of the Committee on Materials and Methods and a committeeman is of interest and will, it is hoped, lead to further discussion on this subject.

My dear Prof. Nolan: I am enclosing a copy of "Standard Rules of the Measurement of Plastering" as adopted by the Employing Plasterers' Association of this city.

These rules have not been formally approved by our Chapter (which has a committee appointed for the purpose of "standardizing" workmanship and materials), and I do not know what modifications, if any, would be demanded before our approval would be given, but the adoption of "standards" in any branch makes it almost impossible to get work done in accordance with the *architects'* specifications, if they *vary* from the adopted standard; for instance, I always specify three-penny, fourteen-gauge wire nails, 1⅜ inches long, for wood lath. The "standard" adopted by the plasterers and unions calls for three-penny, "fine," of sixteen gauge, which is not much better than a good healthy "pin" and is not heavy enough to make a good job—especially if *hard* pine lath are used which are liable to twist and pull out.

I have a fight on every job on this point—as the lathers do not like the larger nails (not so convenient to hold in the mouth)—and there are only about three-fifths as many to the pound, making them cost more. However, I believe the standardization of workmanship and materials will be of great benefit, provided the standards adopted meet the architects' approval. Yours very truly,

———— ————

My dear Mr.————:

I have your letter of February 28th, enclosing the copy of "Standard Rules of the Measurement of Plastering," adopted by the Employing Plasterers' Association of your city.

Of course, all of the so-called "standard rules," specifications, tests, etc., recommended by producers are not necessarily to be accepted by the profession: but "standards" approved by a society like the American Society for Testing Materials, I think, may be accepted by the profession without question, because that Society is made up of membership of both producers and non-producers, that is to say, of producers and manufacturers on the one hand, and of engineers and architects on the other hand. The A.S.T.M. Standard Specifications for portland cement and structural steel, for example, may well be approved and recommended by the architectural profession.

Yours very truly,
THOMAS NOLAN, *Chairman.*

Some Conventions and Meetings

May, 1917:

May 8–10, National Fire Protection Association, annual meeting, Washington, D. C.

May 28–June 1, National Electric Light Association, 40th annual convention, Atlantic City, N. J.

June, 1917:

June 12–15, National Association of Sheet Metal Contractors, Cleveland, Ohio.

June 26–30, American Society for Testing Materials, annual meeting, Atlantic City, N. J.

June 26–29, American Institute of Electrical Engineers, annual convention, Hot Springs, Va.

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